

CNS2020
BOSTON

MARCH  14-17

Cognitive Neuroscience Society

27th Annual Meeting, March 14-17, 2020
Sheraton Hotel, Boston, Massachusetts

Contents

2020 Committees & Staff.....	2
Schedule Overview.....	3
Code of Conduct.....	8
Keynote.....	9
George A Miller Prize.....	10
The Fred Kavli Distinguished Career Contributions Award.....	11
Young Investigator Award.....	12
Special Events.....	13
Special Session.....	14
Data Blitz.....	16
General Information.....	19
Invited-Symposium Sessions.....	21
Symposium Sessions.....	26
Exhibits.....	44
GSA/PFA Awards.....	44
Poster Schedule.....	45
• Poster Session A.....	45
• Poster Session B.....	51
• Poster Session C.....	58
• Poster Session D.....	64
• Poster Session E.....	70
• Poster Session F.....	76
Advertisements.....	83

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Schedule Overview

Saturday, March 14, 2020

11:30 am - 1:30 pm	Exhibitor Check In, <i>Exhibit Hall C</i>
11:30 am - 6:15 pm	On-site Registration & Pre-Registration Check-In, <i>Grand Ballroom Foyer</i>
12:30 - 2:00 pm	Data Blitz Session 1 , <i>Back Bay A&B</i> Data Blitz Session 2 , <i>Back Bay C&D</i> Data Blitz Session 3 , <i>Grand Ballroom</i>
2:00 - 3:00 pm	The Fred Kavli Distinguished Career Contributions in Cognitive Neuroscience Lecture Hemispheric Organization for Visual Recognition, Marlene Behrmann , <i>Carnegie Mellon University, Grand Ballroom</i>
2:30 - 3:00 pm	Poster Session A Set-Up, <i>Exhibit Hall C</i>
2:30 - 6:00 pm	Exhibits Open, <i>Exhibit Hall C</i>
3:00 - 3:30 pm	Coffee Service, <i>Exhibit Hall C</i>
3:00 - 5:00 pm	Poster Session A , <i>Exhibit Hall C</i>
5:00 - 6:00 pm	Opening Ceremonies & Keynote Address — Origins of Human Cooperation, Michael Tomasello , <i>Duke University and Max Planck Institute for Evolutionary Anthropology</i> , OPEN TO THE PUBLIC (Q&A to follow), <i>Grand Ballroom</i>
6:00 - 6:15 pm	Poster Session A Take-Down, <i>Exhibit Hall C</i>
6:00 - 7:00 pm	Welcome Reception, <i>Constitution & Grand Ballroom Foyer</i>
6:15 pm	Exhibit Hall Closed for the Day – No Entry

Sunday, March 15, 2020

7:30 - 8:00 am	Exhibit Hall Access for Exhibitors/Poster Session B Set-up Only, <i>Exhibit Hall C</i>
7:30 am - 5:30 pm	On-site Registration & Pre-Registration Check In, <i>Grand Ballroom Foyer</i>
8:00 - 8:30 am	Continental Breakfast, <i>Exhibit Hall C</i>
8:00 - 10:00 am	Poster Session B , <i>Exhibit Hall C</i>
8:00 am - 5:00 pm	Exhibits Open, <i>Exhibit Hall C</i>
8:30 - 10:00 am	Communications Open House, Press Room, <i>Kent</i>
10:00 am - 12:00 pm	Invited Symposium 1 — Making Sense Out of Big Data in Cognitive Neuroscience , Deanna M. Barch, Chair, <i>Back Bay ABCD</i>
▶ 10:00 - 10:08 am	Introduction
▶ 10:08 - 10:36 am	Talk 1: High-Dimensional Structure of Signal and Noise in 20,000 Neuron Recording , Carsen Stringer
▶ 10:36 - 11:04 am	Talk 2: Differential Resilience to Perturbation of Circuits with Similar Performance , Eve Marder
▶ 11:04 - 11:32 am	Talk 3: Casual Inference with Big Data Sets , Konrad Kording
▶ 11:32 - 12:00 pm	Talk 4: Challenges and Opportunities in the Era of Big Data , Randy L. Buckner
10:00 am - 12:00 pm	Invited Symposium 2 — The Role of Causal Inference for Perceptual Decisions and Adaptive Behavior , Christoph Kayser, Chair, <i>Grand Ballroom</i>
▶ 10:00 - 10:08 am	Introduction
▶ 10:08 - 10:36 am	Talk 1: Inferring Internal Causes of Uncertainty to Improve Decision Making , Rachel Denison
▶ 10:36 - 11:04 am	Talk 2: Causal Inference in Reinforcement Learning , Sam Gershman
▶ 11:04 - 11:32 am	Talk 3: Causal Inference in Multisensory Perception , Uta Noppeney
▶ 11:32 - 12:00 pm	Talk 4: The Persistent Influence of Causal Inference in Multisensory Perception , Christoph Kayser
12:00 - 12:15 pm	Poster B Take-Down, <i>Exhibit Hall C</i>
12:00 - 1:00 pm	Lunch Break (On your own)
12:15 - 1:15 pm	Workshop — Neuroaesthetics Social , <i>Hampton Room</i>
12:30 - 1:00 pm	Poster C Set-Up, <i>Exhibit Hall C</i>
1:00 - 3:00 pm	Poster Session C , <i>Exhibit Hall C</i>
2:30 - 3:00 pm	Coffee Break, <i>Exhibit Hall C</i>

- 3:00 - 5:00 pm
- ▶ 3:00 - 3:08 pm
 - ▶ 3:08 - 3:34 pm
 - ▶ 3:34 - 4:00 pm
 - ▶ 4:00 - 4:26 pm
 - ▶ 4:26 - 4:52 pm
 - ▶ 4:52 - 5:00 pm
- 3:00 - 5:00 pm
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 - ▶ 3:34 - 4:00 pm
 - ▶ 4:00 - 4:26 pm
 - ▶ 4:26 - 4:52 pm
 - ▶ 4:52 - 5:00 pm
- 5:00 - 5:15 pm
- 5:15 pm
- 5:15 - 6:15 pm
- Symposium 1 — Studying the Mind by Manipulating Brain Networks**, Joel Voss, Chair, *Constitution Ballroom*
- Introduction
- Talk 1: Neurostimulation for Flexible Language-Network Redistribution in Healthy and Lesioned Brains**, Gesa Hartwigsen
- Talk 2: Network Stimulation to Test the Human Orbitofrontal Cortex Role in Interference-Based Decision Making**, Thorsten Kahnt
- Talk 3: Using the Human Brain Connectome to Identify Brain Circuit Targets for Depression Symptoms**, Michael Fox
- Talk 4: Stimulating the Hippocampal Network to Test Episodic Memory Mechanisms**, Joel Voss
- Q&A Period: The Speakers will take Questions from the Audience.
- Symposium 2 — Finances and Feelings: The Affective Neuroscience of SES**, Martha Farah, Chair, *Back Bay A&B*
- Introduction
- Talk 1: Neural Correlates of Poverty Observed in the Human Fetal Brain: Implications for Postnatal Wellbeing**, Moriah Thomason
- Talk 2: SES, Early Experience and Brain Development: Informing a Science of Neurodevelopmental Enhancement**, Joan Luby
- Talk 3: Executive and Emotion Regulation Networks Associated with Resilience to Poverty and Early Adversity**, Robin Nusslock
- Talk 4: Socioeconomic Disadvantage and the Neuroscience of Mother-Infant Attachment**, Pilyoung Kim
- Q&A Period: The Speakers will take Questions from the Audience.
- Symposium 3 — Pressing the Play Button: Sequential Neural Replay of Human Memories**, Eitan Schechtman, Chair, *Back Bay C&D*
- Introduction
- Talk 1: Neural Mechanisms of Human Episodic Memory Formation Across Spatial Scales**, Kareem Zaghloul
- Talk 2: Forward Reactivation of Sequential Memory Traces During Sleep**, Marit Petzka
- Talk 3: Neural Replay in Model-Based Learning**, Yunzhe Liu
- Talk 4: Replay of Human Practice Predicts Early Skill Learning**, Leonardo G Cohen
- Q&A Period: The Speakers will take Questions from the Audience.
- Symposium 4 — From Wikipedia Searches to Single Cell Recording: Uncovering the Mechanisms of Information-Seeking**, Tali Sharot, Chair, *Grand Ballroom*
- Introduction
- Talk 1: Using Structure to Explore Efficiently**, Eric Schulz
- Talk 2: Hunters, Busybodies, and the Knowledge Network Building Associated with Curiosity**, Danielle Basset
- Talk 3: A Neural Network for Information Seeking**, Ethan Bromberg-Martin
- Talk 4: Information-Seeking Impairments in Behavioral Addiction as a Novelty Failure**, Irene Cogliati Dezza
- Q&A Period: The Speakers will take Questions from the Audience.
- Poster Session C Take-Down, *Exhibit Hall C*
- Exhibit Hall Closed for the Day – No Entry
- 26TH ANNUAL GEORGE A. MILLER PRIZE IN COGNITIVE NEUROSCIENCE LECTURE**
- Functional Imaging of the Human Brain: A Window into the Architecture of the Mind
- Nancy Kanwisher**, MIT, *Grand Ballroom*

Monday, March 16, 2020

- 7:30 - 8:00 am
- 8:00 - 8:30 am
- 8:00 - 10:00 am
- 8:00 am - 5:30 pm
- 8:00 am - 6:00 pm
- Exhibit Hall Access for Exhibitors/Poster Session D Set-Up Only, *Exhibit Hall C*
- Continental Breakfast, *Exhibit Hall C*
- Poster Session D**, *Exhibit Hall C*
- On-site Registration & Pre-Registration Check In, *Grand Ballroom Foyer*
- Exhibits Open, *Exhibit Hall C*

8:30 - 10:00 am	Communications Open House, Press Room, Kent
10:00 am - 12:00 pm	Symposium 5 — Development and Plasticity of High-Level Vision and Cognition , Zeynep Saygin, Chair, <i>Constitution Ballroom</i>
➤ 10:00 - 10:08 am	Introduction
➤ 10:08 - 10:34 am	Talk 1: Connectivity at the Origins of Domain Specificity in the Cortical Face and Place Networks , Daniel Dilks
➤ 10:34 - 11:00 am	Talk 2: Category-Selective Visual Regions Have Distinctive Signatures of Structural Connectivity in Infants , Rhodri Cusack
➤ 11:00 - 11:26 am	Talk 3: Selectivity Driven by Connectivity: Innate Connectivity Patterns of the Visual Word Form Area , Zeynep Saygin
➤ 11:26 - 11:52 am	Talk 4: Congenital Blindness Repurposes Visual Cortices for Higher-Cognition and Changes their Connectivity , Marina Bedny
➤ 11:52 - 12:00 pm	Q&A Period: The Speakers will take Questions from the Audience.
10:00 am - 12:00 pm	Symposium 6 — Moving from a Deficit-Oriented to a Preventive Model in Education: Examining Neural Correlates for Reading Development , Tzipi Horowitz-Kraus, Chair, <i>Back Bay A&B</i>
➤ 10:00 - 10:08 am	Introduction
➤ 10:08 - 10:34 am	Talk 1: Neurobiological Correlates for Environmental Factors Contributing to Future Reading Abilities , Tzipi Horowitz-Kraus and Jolijn Vanderauwera
➤ 10:34 - 11:00 am	Talk 2: The Typical and Atypical Reading Brain: How a Neurobiological Framework of Reading Development Can Inform Educational Practice and Policy , Nadine Gaab
➤ 11:00 - 11:26 am	Talk 3: Functional and Structural Signatures of Dyslexia Before and After Literacy Instruction , Michael Skeide
➤ 11:26 - 11:52 am	Talk 4: Precursors of Difficulties Associated with the Developmental Steps Towards Full Literacy , Heikki Lyytinen
➤ 11:52 - 12:00 pm	Q&A with the Audience
10:00 am - 12:00 pm	Symposium 7 – Integrating Theory and Data: Using Computational Models to Understand Neuroimaging Data , Brandon Turner, Chair, <i>Back Bay C&D</i>
➤ 10:00 - 10:08 am	Introduction
➤ 10:08 - 10:34 am	Talk 1: Corticostriatal Computations in Learning and Decision Making , Michael Frank
➤ 10:34 - 11:00 am	Talk 2: Mutual Benefits: Combining Reinforcement Learning with Sequential Sampling Models , Birte U. Forstmann
➤ 11:00 - 11:26 am	Talk 3: Neurocomputational Mechanisms of Knowledge Acquisition and Generalization , Alison R. Preston
➤ 11:26 - 11:52 am	Talk 4: Probabilistic Linking Functions for Mind, Brain, and Behavior , Brandon Turner
➤ 11:52 - 12:00 pm	Q&A Period: The Speakers will take Questions from the Audience
10:00 am - 12:00 pm	Symposium 8 – The Meeting of Perception and Memory in the Brain , Marc Coutanche, Chair, <i>Grand Ballroom</i>
➤ 10:00 - 10:08 am	Introduction
➤ 10:08 - 10:34 am	Talk 1: Roles of Perceptual and Conceptual Hierarchies in the Formation of Memories , Marc Coutanche
➤ 10:34 - 11:00 am	Talk 2: Distinct Profiles of Perception and Memory in High-Level Visual Cortex , Chris Baker
➤ 11:00 - 11:26 am	Talk 3: The Reciprocal Link Between Memory and Visual Exploration , Jennifer Ryan
➤ 11:26 - 11:52 am	Talk 4: Past Meets Present: Prediction Error Drives Episodic Memory Updating , Morgan Barense
➤ 11:52 - 12:00 pm	Q&A Period: The Speakers will take Questions from the Audience
12:00 - 12:15 pm	Poster Session D Take-Down, <i>Exhibit Hall C</i>
12:00 - 1:30 pm	Lunch Break (<i>On your own</i>)
12:15 - 1:15 pm	Workshop – Need to Know News from NIH about Grant Applications and Opportunities , <i>Back Bay A&B</i>
12:30 - 1:00 pm	Poster Session E Set-Up, <i>Exhibit Hall C</i>
1:30 - 2:00 pm	YIA 1 - Developmental Tuning Of Action Selection , Catherine Hartley, NYU, <i>Grand Ballroom</i>
2:00 - 2:30 pm	YIA 2 - Structured Reinforcement Learning , Samuel J. Gershman, Harvard University, <i>Grand Ballroom</i>
2:30 - 4:30 pm	Poster Session E , <i>Exhibit Hall C</i>
3:30 - 4:00 pm	Coffee Service, <i>Exhibit Hall C</i>

4:30 – 6:00 pm

- 4:30 - 4:45 pm
- 4:45 - 5:00 pm
- 5:00 - 5:15 pm
- 5:15 - 5:30 pm
- 5:30 - 5:45 pm
- 5:45 - 6:00 pm

Special Session, What Makes us Human? Symposium in Honor of Donald T. Stuss,
Brian Levine, Chair, *Grand Ballroom*

Introduction

Talk 1: Executive Cognitive Functions in Aging: Old Pathways, New Connections, Gary Turner**Talk 2: Effects of Focal Frontal Lobe Lesions on Attention in Multi-Dimensional Reward-Learning Tasks,** Avinash R. Vaidya**Talk 3: The Quest for Hemispheric Asymmetries Supporting and Predicting Executive Functioning,** Antonino Vallesi**Talk 4: Understanding the Workings of the Hippocampus: Lessons from Ventromedial Prefrontal Cortex,** Shayna Rosenbaum

Q&A Period: The Speakers will take Questions from the Audience

6:00 - 6:15 pm

Poster Session E Take-Down, *Exhibit Hall C*

6:15 pm

Exhibit Hall Closed for the Day – No Entry

6:15 - 7:45 pm

CNS Trainee Professional Development Panel, *Constitution Ballroom*

8:00 - 10:00 pm

CNS Student Trainee Social Night, *Dillon's***Tuesday, March 17, 2020**

7:30 - 8:00 am

Exhibit Hall Access for Exhibitors/Poster Session F Set-Up Only, *Exhibit Hall C*

8:00 - 8:30 am

Continental Breakfast, *Exhibit Hall C*

8:00 - 10:00 am

Poster Session F, *Exhibit Hall C*

8:00 am - 12:00 pm

Exhibits Open, *Exhibit Hall C*

8:00 am - 3:00 pm

On-site Registration & Pre-Registration Check In. *Grand Ballroom Foyer*

10:00 am - 12:00 pm

Invited Symposium 3 – Contemporary Approaches To Emotion Representations, Kevin S. LaBar, Chair, *Back Bay ABCD*

- 10:00 - 10:08 am
- 10:08 - 10:36 am
- 10:36 - 11:04 am
- 11:04 - 11:32 am
- 11:32 - 12:00 pm

Introduction

Talk 1: Decoding Spontaneous Emotions and Modeling Their Temporal Dynamics from Resting-State fMRI, Kevin S. LaBar**Talk 2: Emotion Schemas are Represented in the Human Visual System: Evidence from fMRI and Convolutional Neural Networks,** Tor D. Wager**Talk 3: Mapping the Passions: Insights from Computational and Social Functional Approaches,** Dacher Keltner**Talk 4: Modelling Dynamic Facial Expressions of Emotion Across Cultures Using Data-Driven Methods,** Rachael E. Jack

10:00 am - 12:00 pm

Invited Symposium 4 – Novel Approaches to Non-Invasive Brain Stimulation, Jérôme Sallet, Chair, *Grand Ballroom*

- 10:00 - 10:08 am
- 10:08 - 10:36 am
- 10:36 - 11:04 am
- 11:04 - 11:32 am
- 11:32 - 12:00 pm

Introduction

Talk 1: Noninvasive Deep Brain Stimulation Via Temporally Interfering Electric Fields, Nir Grossman**Talk 2: Probing Decision-Making Circuits in Primates Using Transcranial Ultrasound Neuromodulation,** Jérôme Sallet**Talk 3: Ultrasonic Modulation of Higher Order Visual Pathways in Humans,** Chris Butler**Talk 4: Noninvasive CNS Modulation Using Ultrasound with or without Blood-Brain Barrier Opening,** Elisa Konofagou

11:45 am - 12:00 pm

Poster Session F Take-Down, *Exhibit Hall C*

12:00 pm

Exhibit Hall Closed for the Day – No Entry

12:00 - 1:30 pm

Lunch Break (*On your own*)

1:30 - 3:30 pm

Symposium 9 – Cortical Gradients and Their Role in Cognition, Daniel Margulies, Chair, *Constitution Ballroom*

- 1:30 - 1:38 pm
- 1:38 - 2:04 pm
- 2:04 - 2:30 pm
- 2:30 - 2:56 pm
- 2:56 - 3:22 pm
- 3:22 - 3:30 pm

Introduction

Talk 1: The Influence of Brain Structure on Typical and Atypical Brain Function, Boris Bernhardt**Talk 2: Cortical Somatosensory Hierarchical Gradients,** Noam Saadon-Grosman**Talk 3: A Multisensory Perspective on Primary Cortices,** Micah Murray**Talk 4: Neurocognitive Hierarchies as a State Space for On-Going Thought,** Jonathan Smallwood

Q&A Period: The Speakers will take Questions from the Audience

1:30 - 3:30 pm

Symposium 10 – Specifics and Generalities: Beyond the Semantic-Episodic Distinction, Chi Ngo, Chair, *Back Bay A&B*

- 1:30 - 1:38 pm
- 1:38 - 2:04 pm
- 2:04 - 2:30 pm

Introduction

Talk 1: Generalized Knowledge and Episodic Memory in Development, Chi Ngo**Talk 2: Memory Specificity and Concept Generalization,** Dagmar Zeithamova

- 2:30 - 2:56 pm **Talk 3: Semantic Knowledge Distorts Episodic Memory: Behavioral and Neural Investigations,**
Alexa Tompary
- 2:56 - 3:22 pm **Talk 4: Neural Signatures of Time and Meaning in Categorized Free Recall,** Sean Polyn
- 3:22 - 3:30 pm Q&A Period: The Speakers will take Questions from the Audience
- 1:30 - 3:30 pm **Symposium 11 – Deep Data: The Contribution of Case Studies and Special Populations in the Era of Big Data,**
Erez Freud, Chair, *Back Bay C&D*
- 1:30 - 1:38 pm Introduction
- 1:38 - 2:04 pm **Talk 1: The Role of the Dorsal Pathway in Object Perception,** Erez Freud
- 2:04 - 2:30 pm **Talk 2: Perception and Action without Hands,** Ella Striem-Amit
- 2:30 - 2:56 pm **Talk 3: Pattern Separation Following Denate Gyrus Lesions,** Shayna Rosenbaum
- 2:56 - 3:22 pm **Talk 4: Direct Electrical Stimulation Mapping of Language Pathways During Awake Brain Surgery,**
Bradford Z. Mahon
- 3:22 - 3:30 pm Q&A Period: The Speakers will take Questions from the Audience
- 1:30 - 3:30 pm **Symposium 12 – What Determines Category Selectivity in the Cortex?** Talia Konkle, Chair, *Grand Ballroom*
- 1:30 - 1:38 pm Introduction
- 1:38 - 2:04 pm **Talk 1: Cortex is Cortex: Ubiquitous Principles Drive Face-Domain Development,** Mike Arcaro
- 2:04 - 2:30 pm **Talk 2: Category-Selective Regions in Visual Cortex: What are they for?** Marius Peelen
- 2:30 - 2:56 pm **Talk 3: Social Origins of Cortical Face Areas,** Rebecca Saxe
- 2:56 - 3:22 pm **Talk 4: Factors Determining Where Category-Selective Areas Emerge in Visual Cortex,**
Hans Op de Beeck
- 3:22 - 3:30 pm Q&A Period: The Speakers will take Questions from the Audience

Statement on Principles of Community and Code of Conduct

An open exchange of ideas, the freedom of thought and expression, and respectful scientific debate are central to the aims and goals of the Cognitive Neuroscience Society (CNS). CNS stands firmly for an environment that recognizes the inherent worth of every person and group, that fosters dignity, understanding, and mutual respect, and that celebrates diversity. The Governing Board and committee members of CNS endorse a safe, respectful and harassment-free experience for members, speakers/presenters and staff of the CNS.

Harassment and hostile behavior are unwelcome at CNS before, during and after organized lectures and poster sessions. We stand against harassment based on race, gender, religion, age, appearance, national origin, ancestry, disability, sexual orientation, and gender identity, or any other category. Harassment includes degrading verbal comments, deliberate intimidation, stalking, harassing photography or recording, inappropriate physical contact, and unwelcome sexual attention. The policy is not intended to inhibit challenging scientific debate, but rather to promote it by ensuring that all are welcome to participate in a shared spirit of scientific inquiry. These principles apply equally to scientific and social events organized by CNS.

Any concerns should be conveyed to a member of our Diversity, Outreach and Training Committee:

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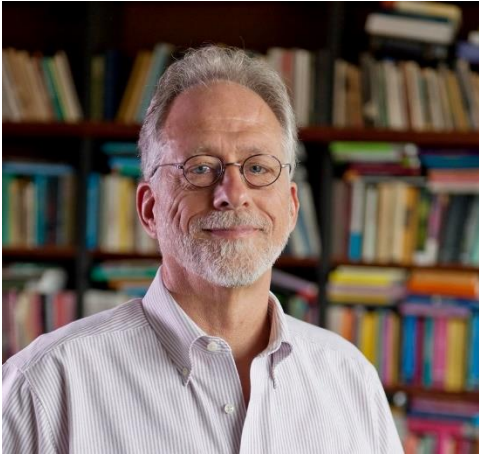
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Keynote



Michael Tomasello

Duke University and Max Planck Institute for Evolutionary Anthropology

Keynote Address, Open to the Public

Saturday, March 14, 2020, 5:00-6:00 pm, Grand Ballroom

Origins of Human Cooperation

Humans are biologically adapted for cultural life in ways that other primates are not. Humans have unique motivations and cognitive skills for sharing emotions, experience, and collaborative goals (shared intentionality). The motivations and skills involved first emerge in human ontogeny at around one year of age, as infants begin to participate with other persons in various kinds of collaborative and joint attentional activities, including linguistic communication. Our nearest primate relatives understand important aspects of intentional action - especially in competitive situations - but they do not seem to have the motivations and cognitive skills necessary to engage in activities involving collaboration, shared intentionality, and, in general, things cultural.

George A Miller Prize

Congratulations to Nancy Kanwisher for being awarded this honor!

Nancy Kanwisher will accept this prestigious award and deliver her lecture on Sunday, March 15, 2020, 5:15 – 6:15 pm, in the Grand Ballroom

Functional Imaging of the Human Brain: A Window into the Architecture of the Mind

Nancy Kanwisher

McGovern Institute for Brain Research, Department of Brain & Cognitive Sciences, and Center for Brains, Minds, and Machines, MIT.



The last 20 years of brain imaging research has revealed the functional organization of the human brain in glorious detail, including dozens of cortical regions each of which is specifically engaged in a particular mental task, like recognizing faces, perceiving speech sounds, and understanding the meaning of a sentence. Each of these regions is present, in approximately the same

location, in essentially every normal person. This initial rough sketch of the functional organization of the brain counts as real progress, giving us a kind of diagram of the major components of the human mind. But at the same time, it is just the barest beginning. Really what our new map of the human brain offers is a vast landscape of new questions. In this talk I will first broadly survey some of the most widely replicated functionally distinctive cortical regions, and then describe ongoing work into three such questions. First, in light of widespread findings that functionally specific cortical regions contain information about “nonpreferred” stimuli, do some patches of cortex really play a highly specific causal role in processing just one class of stimuli? Second, how does all this complex structure, that is so similar across subjects, arise in development? I will discuss (but not answer) a few recent findings about the developmental origins of cortical specificity, including what appears to be a fusiform face area in the ventral visual pathway of congenitally blind people. Third, I will discuss new modelling results that shed light on why we have the particular functionally specific cortical regions we do, and apparently not others, and why, from a computational point of view, functional specificity might be a good design feature for brains in the first place.

About the George A. Miller Prize in Cognitive Neuroscience

The George A. Miller Prize in Cognitive Neuroscience was established in 1995 by the Cognitive Neuroscience Society to honor the innovative scholarship of George A. Miller, whose many theoretical advances have greatly influenced the discipline of cognitive neuroscience. The first ten years of the prize were funded by generous support from the James S. McDonnell Foundation.

Each year the Prize recognizes an individual whose distinguished research is at the cutting-edge of their discipline with realized or future potential, to revolutionize cognitive neuroscience. Extraordinary innovation and high impact on international scientific thinking is a hallmark of the recipient’s work.

An annual call for nominations for the George A. Miller Prize is made to the membership of the society. The recipient of the prize attends the annual meeting of the Cognitive Neuroscience Society and delivers the George A. Miller lecture.

Previous Winners of the George A. Miller Lectureship

2019	Earl K. Miller, Massachusetts Institute of Technology
2018	Elizabeth Spelke, Harvard University
2017	Dr. David Van Essen, Washington University in St Louis
2016	Brian Wandell, Isaac and Madeline Stein Family Professor
2015	Patricia Kuhl, Ph.D., University of Washington
2014	Jon Kaas, Ph.D., Vanderbilt University
2013	Fred Gage, Ph.D., The Salk Institute
2012	Eve Marder, Ph.D., Brandeis University
2011	Mortimer Mishkin, Ph.D., NIMH
2010	Steven Pinker, Ph.D., Harvard University
2009	Marcus Raichle, Ph.D., Washington University School of Medicine
2008	Anne Treisman, Ph.D., Princeton University
2007	Joaquin M. Fuster, Ph.D., University of California Los Angeles
2006	Steven A. Hillyard, Ph.D., University of California San Diego
2005	Leslie Ungerleider, Ph.D., National Institute of Mental Health
2004	Michael Posner, Ph.D., University of Oregon
2003	Michael Gazzaniga, Ph.D., Dartmouth College
2002	Daniel Kahneman, Ph.D., Princeton University
2001	William Newsome, Ph.D., Stanford University
2000	Patricia Churchland, Ph.D., University of California, San Diego
1999	Giacomo Rizzolatti, Ph.D., University of Parma, Italy
1998	Susan Carey, Ph.D., New York University
1997	Roger Shepard, Ph.D., Stanford University
1996	David Premack, Ph.D., CNRS, France
1995	David H. Hubel, Ph.D., Harvard Medical School

The Fred Kavli Distinguished Career Contributions Award

Congratulations to Marlene Behrmann for being awarded this honor!

Marlene Behrmann will accept this prestigious award and deliver her lecture on Saturday, March 14, 2020 from 2:00 – 3:00 pm, in the Grand Ballroom.

Hemispheric Organization for Visual Recognition

Marlene Behrmann

Thomas S. Baker University Professor of Cognitive Neuroscience, Department of Psychology and Neuroscience Institute, Carnegie Mellon University



Despite the similarity in structure, the hemispheres of the human brain have somewhat different functions. A traditional view of hemispheric organization asserts that there are independent and largely lateralized domain-specific regions in ventral occipitotemporal (VOTC), specialized for the recognition of distinct classes of objects. In this talk, I will offer an alternative account of the organization of the hemispheres, with a specific

focus on face and word recognition. This alternative account relies on three computational principles: distributed representations and knowledge, cooperation and competition between representations, and topography and proximity. The crux is that visual recognition results from a network of regions with graded functional specialization, that is distributed across both hemispheres. Specifically, the claim is that face recognition, which is acquired relatively early in life, is processed by VOTC regions in both hemispheres. Once literacy is acquired, word recognition, which is co-lateralized with language areas, primarily engages the left VOTC and, consequently, face recognition is primarily, albeit not exclusively, mediated by the right VOTC. I will present psychological and neural evidence from a range of studies conducted with normal adults and children, as well as from cases with neuropsychological deficits and from cases with hemispherectomy, and will also consider evidence that seems incompatible with this account. Last, I will offer suggestions for future investigations whose findings may further refine this account and enhance our understanding of the cerebral hemispheres.

About the Distinguished Career Contributions Award

The Distinguished Career Contributions Award (DCC) was established in 2012 and it has been sponsored by the Fred Kavli Foundation since 2016. This award honors senior cognitive neuroscientists for their sustained and distinguished career, including outstanding scientific contributions, leadership and mentoring in the field of cognitive neuroscience.

An annual call for nominations for the Fred Kavli Distinguished Career Contributions Award is made to the membership of the society. The recipient of the prize attends the annual meeting of the Cognitive Neuroscience Society and delivers the Fred Kavli Distinguished Career Contributions lecture.

Previous Winners of the Distinguished Career Contributions Award

2019	Daniel L. Schacter, Department of Psychology, Harvard University
2018	Alfonso Caramazza, Harvard University
2017	Marcia K. Johnson, Yale University
2016	James Haxby, University of Trento
2015	Marta Kutas, Ph.D., University of California, San Diego
2014	Marsel Mesulam, M.D., Northwestern University
2013	Robert T. Knight, M.D., University of California, Berkeley
2012	Morris Moscovitch, Ph.D., University of Toronto



Young Investigator Award

Congratulations to the 2020 Young Investigator Award Winners!

Congratulations to Catherine Hartley and Samuel J. Gershman for being awarded the 2020 Young Investigator Award.

Catherine Hartley and Samuel J. Gershman will give their award lectures on Monday, March 16, 2020, 1:30 –2:30 pm, in Grand Ballroom of the Sheraton Boston Hotel.

YIA special lectures take place on Monday, March 16, 2020, 1:30 – 2:30 pm, in the Grand Ballroom at the Sheraton Boston Hotel.

The purpose of the awards is to recognize outstanding contributions by scientists early in their careers. Two awardees, one male and one female, are named by the Awards Committee, and are honored at the CNS annual meeting. Each award includes \$500 US to be used by the winners toward travel costs to the meeting, or for any other purpose.

Developmental Tuning of Action Selection

Monday, March 16, 2019, 1:30 –2:00 pm, Grand Ballroom

Catherine A. Hartley

Assistant Professor, Department of Psychology and Center for Neural Science, New York University



A diverse set of learning, memory, and decision-making processes enable us to respond adaptively to environmental challenges and opportunities. These cognitive processes, supported by dynamic interactions between subcortical and prefrontal circuitry, change markedly from childhood to adulthood. In this talk, I will present work characterizing developmental changes in the cognitive representations and computations

engaged to evaluate and select actions as the brain develops. I will discuss how these changes may optimize behavior for an individual's developmental stage and unique life experiences.

Structured Reinforcement Learning

Monday, March 16, 2020, 2:00 –2:30 pm, Grand Ballroom

Samuel J. Gershman

Associate Professor, Department of Psychology and Center for Brain Science, Harvard University



In this talk, I will survey classical ideas about reinforcement learning in the brain, some of their successes, and the challenges they confront when dealing with real-world complexity. The drive to develop computational solutions to these challenges has led to new insights into the functions of dopamine, the hippocampus, and the prefrontal cortex. A common theme is the need for solutions that exploit structure in the environment.

Special Events

SESSION	DATE	TIME	LOCATION
Neuroaesthetics Social	Sunday, March 15	12:15 - 1:15 pm	Hampton Room
Need to Know News from NIH about Grant Applications and Opportunities	Monday, March 16	12:15 - 1:15 pm	Back Bay A&B
CNS Trainee Professional Development Panel	Monday, March 16	6:15 - 7:45 pm	Constitution Ballroom
CNS Student Trainee Social	Monday, March 16	8:00 - 10:00 pm	Dillon's

Neuroaesthetics Social

Sunday, March 15, 2020, 12:15 - 1:15 PM, *Hampton Room*

This social meeting brings together researchers interested in understanding the neural basis of aesthetic responses, such as when artwork, music, dance or landscapes are experienced as beautiful. We will highlight aesthetics research being presented at CNS in a "Data Blitz" session, followed by an open discussion and time to socialize.

Need to Know News from NIH about Grant Applications and Opportunities

Monday, March 16, 2020, 12:15 - 1:15 PM, *Back Bay A&B*

Speakers: *Kathy Mann Koepke, NICHD/NIH, Dr. Dana Plude, NIA*

NIH Program Directors present news you need to find your best research fit for training, career, or research grants; NIH contacts for more guidance; overview of application, review, funding processes. UPDATE! NEED TO KNOW: new FOAs & Notices, BESH research, & clinical trials news. Also find us throughout the meeting.

CNS Trainee Professional Development Panel

Monday, March 16, 2020, 6:15 - 7:45 PM, *Constitution Ballroom*

CNS Student Trainee Social

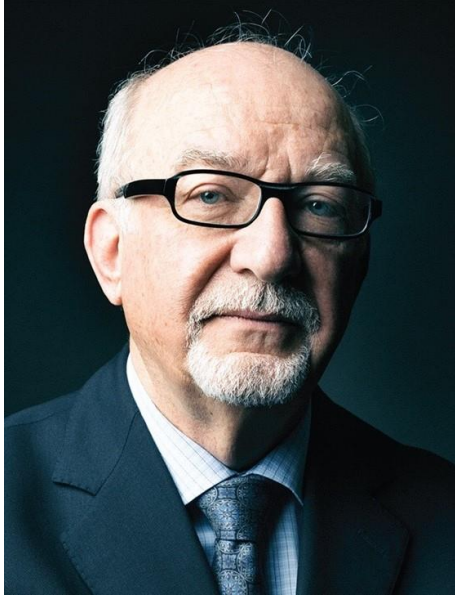
Monday, March 16, 2020, 8:00 - 10:00 PM, Dillon's located at *955 Boylston St, Boston, MA 02115*

This event is open to all students and post docs of the Cognitive Neuroscience Society. CNSTA Social Organizers: Sarah Kark (Boston College), Holly Bowen (Boston College). Come and join us for the annual CNS Trainee Association (CNSTA) Student Social Night, Monday, March 16th, after the CNS Trainee Professional Development Panel. We will meet in front of the exit to the Constitution Ballroom immediately following the panel (7:45 or 7:50 pm) to go to the 8:00 pm start of the Social. There will be no cover charge, appetizers will be provided for the first 150 Trainees (cash bar). More information will be posted on the CNS Trainee Association Facebook page (<https://www.facebook.com/CNSTrainees/>). We look forward to meeting you!

HOW TO GET THERE:

From the Sheraton:

- Head west on Belvidere St toward Dalton St
- Turn Right onto Dalton St
- Turn Left onto Boylston St
- Destination will be on your right at 955 Boylston St, Boston, MA 02115



SPECIAL SESSION

WHAT MAKES US HUMAN? SYMPOSIUM IN HONOR OF DONALD T. STUSS

Chair: Brian Levine, Rotman Research Institute
Speakers: Gary Turner, Avinash R. Vaidya,
Antonino Vallesi, Shayna Rosenbaum

Donald T. Stuss was one of the foremost contemporary neuropsychologists, world leader in the neuroscientific study of the prefrontal cortex, and founding director of two leading neuroscience institutes (the Rotman Research Institute and the Ontario Brain Institute). Stuss is most known for his clinical-scientific work on the human prefrontal cortex, starting with his seminal studies of prefrontal lobotomy patients, confabulation, and Capgras syndrome in the late 1970's at the Boston VA and the seminal 1986 volume, *The Frontal Lobes* (with Frank Benson) and continuing through to the present, highlighting the role of the prefrontal cortex in memory, social cognition, and consciousness. Stuss simultaneously contributed major conceptual advances in the areas of assessment, intra-individual variability, traumatic brain injury, rehabilitation, and neurodegenerative disease. Stuss's science always started with clinical observations and was centered on questions central to humanity, such as how we view ourselves and others and how we successfully function in the world. As a key figure who brought the human prefrontal function into the realm of empirical science, Stuss perpetually challenged orthodoxy with a combination of clinical sensitivity and experimental acumen. This symposium highlights of Stuss's contributions from the perspectives of some of his friends and colleagues across the spectrum of clinical and cognitive neuroscience, neuroimaging, and cognitive neurology.

TALK 1: EXECUTIVE COGNITIVE FUNCTIONS IN AGING: OLD PATHWAYS, NEW CONNECTIONS

Gary Turner, York University

Lesion-based and functional neuroimaging studies of frontal lobe function have shown that executive cognitive functions (working memory, inhibition, task-switching) are represented by discrete prefrontal brain regions and interactions among frontally-mediated systems. This fractionation account has yet to be fully investigated in the aging brain. In an early meta-analytic review we found evidence that patterns of brain activity associated with these executive cognitive functions remain distinct with age, contrary to neural dedifferentiation accounts. The first aim of the talk will be to contrast evidence for fractionation versus dedifferentiation accounts of executive cognitive functioning in older adulthood. The second aim will be to present data comprising the first direct test of these accounts using a novel executive control task paradigm. Younger (N=21) and older (N=26) adults underwent fMRI scanning while performing working memory, inhibition, and task switching trials embedded within a common task architecture. We used Partial Least Squares to identify whole brain patterns of activity associated with task conditions and age group. Older adults showed distinct patterns of brain activity during the three executive control tasks. These data provide preliminary support for the hypothesis that fractionation of executive cognitive functions, observed in young, is largely preserved into older age. However, aging was associated with greater interactivity among brain regions implicated in executive cognitive functions and the default network, consistent with the Default to Executive Coupling Hypothesis of Aging.

TALK 2: EFFECTS OF FOCAL FRONTAL LOBE LESIONS ON ATTENTION IN MULTI-DIMENSIONAL REWARD-LEARNING TASKS

Avinash R. Vaidya, Brown University

Donald Stuss described the frontal lobes as the "final frontier of neuropsychology" (Stuss & Levine, 2002). Stuss and many others have struggled with the paradox that lesions to this region often cause major changes in behavior in the real world, but leave classic neuropsychological task performance unaffected. Unlike laboratory settings, life is messy, complex and highly

multidimensional. Learning what matters and directing attention to those dimensions is especially challenging when the information we receive from our environment is noisy. In a series of experiments, we investigated the role of sub-regions of the frontal lobes to guiding attention to reward-predictive features in tasks that modelled some of this complexity and noise. Across tasks, we found evidence that damage to the ventromedial frontal lobe reduced attention to stimulus features that were predictive of reward in the long-term and impaired learning about the values of these features. On the other hand, lesions of the left lateral frontal lobe caused greater credit assignment to visually salient but reward-irrelevant stimulus features. We suggest that these frontal lobe sub-regions may be playing distinct roles in solving the problem of learning to optimize reward within such dynamic, complex environments. The ventromedial frontal lobe increases the gain on learning about reward-predictive features and the left lateral frontal lobe tunes the assignment of credit to overcome interference from irrelevant salient features.

TALK 3: THE QUEST FOR HEMISPHERIC ASYMMETRIES SUPPORTING AND PREDICTING EXECUTIVE FUNCTIONING

Antonino Vallesi, Università degli Studi di Padova

This talk will address the neurocognitive architecture of two executive functions: criterion-setting ? the capacity to flexibly set up and select task rules and associations between stimuli, responses and non-responses, and monitoring ? the process of continuously evaluating that task rules are being applied optimally. There is a documented tendency for criterion-setting and monitoring to differentially recruit right and left lateral frontal regions and connected networks, respectively, above and beyond the specific task context. This model, known as the ROBBIA model, initially originated from extensive neuropsychological work led by Don Stuss. Novel empirical evidence in favor of this model on both healthy and brain-damaged individuals will also be shown, coming from functional neuroimaging, EEG, individual difference approaches and, again, neuropsychology.

TALK 4: UNDERSTANDING THE WORKINGS OF THE HIPPOCAMPUS: LESSONS FROM VENTROMEDIAL PREFRONTAL CORTEX

Shayna Rosenbaum, York University

It is difficult to make sense of the complexity of prefrontal cortex, an evolutionary newcomer that is needed for seemingly disparate, higher-order cognitive and socioemotional abilities that are not readily detected with standard neuropsychological testing. Donald Stuss embraced the challenge with an approach that integrates astute human observation, macaque cytoarchitecture, and theoretically grounded tasks within a clinical-scientific framework. In doing so, he brought us closer to understanding the nature and extent of functional dissociations and coordination among ventromedial prefrontal cortex (vmPFC) subregions, with the ultimate goal of developing meaningful strategies to help patients compensate for functional loss. Here I present studies that apply this approach to understand the functioning of the hippocampus, a relatively primitive brain structure known for its role in episodic memory. Recent research suggests that the hippocampus plays a role in cognitive abilities beyond episodic memory, including future imagining and decision-making, but the nature and extent of this role remains unclear. Using tests of reward discounting, gambling, and moral reasoning originally developed to assess vmPFC integrity, we show that not all types of future-oriented decisions are affected by hippocampal damage. The results suggest that just as there are multiple forms of memory, there are multiple forms of future thinking, with differential contributions from the hippocampus vs. vmPFC. Findings may inform guide the development of workable interventions to address impaired memory and decision-making.

Data Blitz

Session #	Date	Time	Location	Chair
Data Blitz Session 1	Saturday, March 14	12:30 – 2:00 pm	Back Bay A&B	Vishnu Murty
Data Blitz Session 2	Saturday, March 14	12:30– 2:00 pm	Back Bay C&D	Jeffrey Johnson
Data Blitz Session 3	Saturday, March 14	12:30 – 2:00 pm	Grand Ballroom	Marian Berryhill

Data Blitz Sessions

A Data Blitz is a series of 5-minute talks, each covering just a bite-sized bit of research. It will offer a fast-paced overview of some of the most exciting research presented at this year's poster sessions.

Data Blitz Session 1

Saturday, March 14, 12:30 - 2:00 pm, Bayview Room A&B

Chair: Vishnu Murty, Temple University

Speakers: Lars Hausfeld, Mattia Pietrelli, Anthony Dick, Kaisu Lankinen, Summer Sheremata, Ryan Law, Nikita Agrawal, Rebecca Marks, Yushuang Liu, Megan Zirnstein, Thomas D. Ferguson, Christopher Kelly, Qingfang Liu, Marcela Paola Ovando Tellez, Frank Song

TALK 1: TRACKING OF CONTINUOUS SPEECH IN NOISY AUDITORY SCENES AT 7T FMRI

Lars Hausfeld¹, Elia Formisano¹, ¹Maastricht University - Dept. Cognitive Neuroscience

TALK 2: ARE ATTENTION-RELATED MODULATIONS OF ALPHA-BAND DYNAMICS LOCAL OR GLOBAL?

Mattia Pietrelli¹, Jason Samaha², Bradley Postle¹, ¹UW Madison, ²UC Santa Cruz

TALK 3: THE FRONTAL ASLANT TRACT (FAT) WHITE MATTER MICROSTRUCTURE DIFFERENTIATES YOUNG CHILDREN WITH ADHD FROM TYPICAL CONTROLS

Anthony Dick¹, Dea Garic¹, Paulo Graziano¹, ¹Florida International University

TALK 4: CROSSMODAL MODULATION OF THE INTRACORTICAL DEPTH PROFILE OF BOLD SIGNALS IN AUDITORY CORTEX

Kaisu Lankinen^{1, 2}, Seppo P. Ahlfors^{1,2}, Fahimeh Mamashli^{1,2}, Anna Blazejewska^{1, 2}, Tommi Raji^{3,4}, Jyrki Ahveninen^{1,2}, ¹Massachusetts General Hospital, ²Harvard Medical School, ³Shirley Ryan AbilityLab, ⁴Northwestern University

TALK 5: CONTIGUOUS LOCATIONS INCREASE RELIABILITY OF PARIETAL MAPS

Summer Sheremata¹, Young Seon Shin¹, ¹Florida Atlantic University

TALK 6: LISTS WITH AND WITHOUT SYNTAX: NEURAL CORRELATES OF SYNTACTIC STRUCTURE

Ryan Law¹, Abu Dhabi Liina Pylkkänen¹, ¹New York University

TALK 7: SPATIOTEMPORAL DYNAMICS OF LEFT INFERIOR FRONTAL GYRUS RECRUITMENT DURING SPONTANEOUS AND CUED SPEECH PRODUCTION

Nikita Agrawal¹, Werner Doyle¹, Orrin Devinsky¹, Adeen Flinker¹, ¹NYU School of Medicine

TALK 8: VWFA FUNCTIONAL CONNECTIVITY FOR PRINT AND SPEECH PROCESSING IN EMERGING READERS

Rebecca Marks¹, Lynn Eickholt¹, Yuuko Uchikoshi², Fumiko Hoeft³, Ioulia Kovelman¹, ¹University of Michigan, ²University of California, Davis, ³University of Connecticut

TALK 9: TRACKING LEXICAL CONSOLIDATION OF NOVEL WORD MEANINGS: ERP AND TIME FREQUENCY ANALYSES

Yushuang Liu¹, Janet van Hell¹, ¹The Pennsylvania State University

TALK 10: HUMOR MODULATES PREDICTION ERROR UPDATING IN FIRST AND SECOND LANGUAGE READING COMPREHENSION

Megan Zirnstein¹, Rhonda Mudry², Sybrine Bultena³, Dorothee Chwilla⁴, Judith Kroll⁵, ¹Pomona College, ²Pennsylvania State University College of Medicine, ³Centre for Language Studies, Radboud University, Nijmegen, ⁴Donderst Institute for Brain, Cognition, and Behavior, ⁵University of California, Irvine

TALK 11: USING EEG TO INVESTIGATE THE NEURO-MODULATORY SYSTEMS UNDERLYING STRESS AND DECISION MAKING

Thomas D. Ferguson¹, Olave E. Krigolson¹, ¹Centre for Biomedical Research, University of Victoria

TALK 12: CLASSIFYING INDIVIDUALS INTO 'INFO TYPES' BASED ON INFORMATION-SEEKING MOTIVES

Christopher Kelly¹, Tali Sharot¹, ¹UCL

TALK 13: A SPATIO-TEMPORAL ANALYSIS ON NEURAL CORRELATES OF INTERTEMPORAL CHOICE

Qingfang Liu¹, Woojong Yi¹, Brandon Turner¹, ¹The Ohio State University

Data Blitz Session 2

Saturday, March 14, 12:30 - 2:00 pm, Bayview Room C&D

Chair: Jeffrey Johnson,

Speakers: Yuchao Wang, Guido Orgs, Livia Tomova, Maeve Boylan, Ashley Frost, Nathan Cashdollar, Bowman Groff, Ana Chkhaidze, Attila Andics, Rose Cooper, Olav Krigolson, Tudar Muntianu, Siamak Sorooshyari, Emma Brown, Kieran Fox (Josef Parvici)

TALK 1: NEURAL CORRELATES OF AESTHETIC ENGAGEMENT WITH LITERATURE

Yuchao Wang^{1,2}, Franziska Hartung², Marloes Mak³, Roel Willems³, Anjan Chatterjee², ¹Haverford College, ²Penn Center for Neuroaesthetics, ³Radboud University Nijmegen

TALK 2: EEG FREQUENCY-TAGGING OF APPARENT BIOLOGICAL MOTION DISSOCIATES ACTION AND BODY PERCEPTION

Guido Orgs¹, Emiel Cracco², Goedele van Belle³, Lisa Quenon³, Patrick Haggard³, Bruno Rossion⁵, ¹Goldsmiths, University of London, ²Ghent University, ³UCL, ⁵Université de Lorraine, CNRS, CRAN

TALK 3: NEURAL REPRESENTATION OF SOCIAL CRAVING FOLLOWING ISOLATION IN THE HUMAN BRAIN

Livia Tomova¹, Kim Wang¹, Kay Tye², Rebecca Saxe¹, ¹Massachusetts Institute of Technology, ²Salk Institute

TALK 4: ASSESSING THE RELATIONSHIP BETWEEN ALPHA POWER AND HEMODYNAMIC ACTIVATION DURING EMOTIONAL MENTAL IMAGERY

Maeve Boylan¹, W. Matthew Friedl¹, Harold Rocha¹, Andreas Keil¹, ¹University of Florida

TALK 5: EFFECTS OF INTERACTIVE SOCIAL CONTEXT ON VISUAL ATTENTION TO SOCIAL PARTNERS

Ashley Frost¹, Nohely Gonzalez¹, Brynna Pechous¹, Katherine Warnell¹, ¹Texas State University

TALK 6: RELATIONSHIP OF MOOD, COGNITION AND PHYSICAL ACTIVITY IN DEPRESSION: REMOTE SYMPTOM MONITORING USING WEARABLE TECHNOLOGY

Nathan Cashdollar¹, Francesca Cormack¹, Maggie McCue², Caroline Skirrow¹, Jennifer Schuster², Nick Taptiklis¹, Emilie Glazer³, Elli Panagopoulos³, Tempest Van Shaik³, Ben Fehner³, James King³, Jenny H Barnett¹, ¹Cambridge Cognition, ²Takeda Pharmaceuticals USA, ³CTRL Group

TALK 7: THE DISTINCT ROLES OF PREFRONTAL GABA AND GLUTAMATE/GLUTAMINE IN TWO TYPES OF COGNITIVE CONTROL

Boman Groff¹, Hilary Traut¹, Rebecca Helmuth¹, Harry Smolker¹, Mark Brown^{1,2}, Hannah Snyder³, Benjamin Hankin⁴, Marie Banich¹, ¹UC Boulder, ²Anschutz Medical Campus, ³Brandeis University, ⁴University of Illinois Urbana-Champaign

TALK 8: OPPOSITE LATERALIZATION FOR FACE RECOGNITION AND GENDER PERCEPTION

Ana Chkhaidze^{1,2}, Matthew Harrison², Zhiheng Zhou³, Samantha Lee², Lars Strother², ¹UC San Diego, ²University of Nevada, Reno, ³UC Davis

TALK 9: NOT ALWAYS THE FACE: DIFFERENCES BETWEEN HUMAN AND DOG NEURAL FACE- AND CONSPECIFIC-PREFERENCE

Attila Andics¹, Nóra Bunford², Raúl Hernández-Pérez¹, Eszter Borbála Farkas¹, Laura V. Cuaya¹, Dóra Szabó¹, Ádám György Szabó³, Márta Gácsi¹, Ádám Miklósi¹, ¹ELTE Research Centre for Natural Sciences, ²MR Research Center, ³Semmelweis University

TALK 10: PROGRESSION FROM FEATURE-SPECIFIC BRAIN ACTIVITY TO HIPPOCAMPAL BINDING DURING EPISODIC ENCODING

Rose Cooper¹, Maureen Ritchey¹, ¹Boston College

TALK 11: USING MOBILE EEG TO ASSESS BRAIN HEALTH AND PERFORMANCE

Olav Krigolson¹, ¹University of Victoria

TALK 12: A GAUSSIAN PROCESS MODEL OF HUMAN ELECTROCORTICOGRAPHIC DATA

Tudor Muntianu¹, Lucy Owen¹, Andrew Heusser¹, Patrick Daly², Katherine Scangos², Jeremy Manning¹, ¹Dartmouth College, ²UC San Francisco

TALK 13: PREDICTING DEPRESSION FROM SPEECH RECORDINGS: A MACHINE LEARNING AND FEATURE SELECTION APPROACH

Siamak Sorooshyari¹, Thomas Van Vleet², Alit Stark-Inbar², Heather Dawes³, Deanna Wallace³, Morgan Lee³, Michael Merzenich², Edward Chang³, Mor Nahum⁴, ¹UC Berkeley, ²Posit Science, ³UC San Francisco, ⁴Hebrew University of Jerusalem

TALK 14: MILITARY BLAST EXPOSURE AND PTSD ARE ASSOCIATED WITH AGING WHITE MATTER INTEGRITY AND FUNCTIONING

Emma Brown¹, Anna Etchin¹, William Milberg¹, Regina McGlinchey¹, David Salat¹, ¹VA Boston Healthcare System

TALK 15: LINKING HIERARCHICAL CORTICAL GRADIENTS TO COGNITIVE EFFECTS OF INTRACRANIAL ELECTRICAL STIMULATION IN THE HUMAN BRAIN

Kieran Fox¹, Lin Shi¹, Sori Baek¹, Omri Raccach¹, Brett Foster², Srijani Saha¹, Daniel Margulies³, Aaron Kucyi¹, Josef Parvizi¹, ¹Stanford University, ²Baylor College of Medicine, ³Centre National de la Recherche Scientifique

Data Blitz Session 3

Saturday, March 14, 12:30 - 2:00 pm, Grand Ballroom

Chair: Marian Berryhill,

Speakers: Ian Ballard, Kristina Horne, Poortata(Pia) Lalwani, Justin Fleming, Wei-Tang Chang, Chris McNorgan, Emily Hokett, Jiahe Zhang, Lauren DiNicola, Kevin P. Madore, McNeel Jantzen, Cybelle Smith, Nina Heins, Michael C. Granovetter, Matthew Sachs

TALK 1: THE STRIATAL FEEDBACK RESPONSE REFLECTS GOAL UPDATING

Ian Ballard¹, Mark D'Esposito¹, ¹University of California, Berkeley

TALK 2: DOES COMBINED DECISION-MAKING TRAINING AND TDCS PRODUCE GENERALIZABLE COGNITIVE BENEFITS IN HEALTHY OLDER ADULTS?

Kristina Horne¹, Hannah L. Filmer¹, Jason B. Mattingley¹, Paul E. Dux¹, Zoie Nott¹, ¹University of Queensland

TALK 3: AGE-RELATED DECLINE IN RESTING STATE BRAIN SIGNAL VARIABILITY: CAUSE AND CONSEQUENCES

Poortata (Pia) Lalwani¹, Douglas Garrett², Thad Polk¹, ¹University of Michigan, Ann Arbor, ²Max Planck UCL

TALK 4: SENSORY MODALITY AND INFORMATION DOMAIN MODULATE BEHAVIORAL AND NEURAL SIGNATURES OF WORKING MEMORY INTERFERENCE

Justin Fleming¹, Michelle Njoroge², Abigail Noyce², Tyler Perrachione², Barbara Shinn-Cunningham³, ¹Harvard University, ²Boston University, ³Carnegie Mellon University

TALK 5: FUNCTIONAL ORGANIZATION OF HIPPOCAMPUS IS ALTERED BY ASSOCIATIVE ENCODING AND RETRIEVAL

Wei-Tang Chang¹, Stephanie Langella¹, Weili Lin¹, Kelly Giovanello¹, ¹UNC at Chapel Hill

TALK 6: INTEGRATING MVPA AND CONNECTIVITY IN A MULTIPLE CONSTRAINT NETWORK TO BOOTSTRAP BRAIN MODELS

Chris McNorgan¹, Greg Smith¹, Erica Edwards¹, Jennifer Mosley¹, ¹University at Buffalo

TALK 7: RELATIONSHIPS BETWEEN SLEEP QUALITY AND NEURAL REINSTATEMENT OF ASSOCIATIVE MEMORY IN YOUNG AND OLDER ADULTS

Emily Hokett¹, Soroush Mirjalili¹, Audrey Duarte¹, ¹Georgia Institute of Technology

TALK 8: STRONGER STRUCTURAL CONNECTIVITY IN THE DEFAULT MODE NETWORK IS ASSOCIATED WITH YOUTHFUL MEMORY IN SUPERAGING

Jiahe Zhang¹, Lianne Scholtens², Martijn van den Heuvel², Brad Dickerson³, Lisa Barrett¹, ¹Northeastern University, ²Vrije Universiteit Amsterdam, ³Massachusetts General Hospital

TALK 9: PARALLEL NETWORKS DISSOCIATE EPISODIC AND SOCIAL FUNCTIONS ACROSS DISTRIBUTED CORTICAL REGIONS WITHIN INDIVIDUALS

Lauren DiNicola¹, Rodrigo Braga², Randy Buckner¹, ¹Harvard University, ²Stanford University

TALK 10: MOMENT-TO-MOMENT AND INDIVIDUAL DIFFERENCES IN SPONTANEOUS LAPSES OF ATTENTION AT ENCODING PREDICT SUBSEQUENT MEMORY

Kevin P. Madore¹, Anna Khazenzon¹, Anthony Norcia¹, Anthony Wagner¹, ¹Stanford University

TALK 11: TRANSFER EFFECTS OF MUSICAL TRAINING TO SPEECH SALIENT TEMPORAL FEATURES: IMPROVED SENSITIVITY TO VOT

McNeel Jantzen¹, Rebecca Scheurich², KJ Jantzen¹, ¹Western Washington University, ²McGill University

TALK 12: HIERARCHICAL STATISTICAL LEARNING: BEHAVIORAL, NEUROIMAGING, AND NEURAL NETWORK MODELING INVESTIGATIONS

Cybelle Smith¹, Sharon Thompson-Schill¹, Anna Schapiro¹, ¹University of Pennsylvania

TALK 13: THIS SOUNDS GOOD! HURDLING AND TAP-DANCING RE-AFFERENCES ARE PROCESSED DIFFERENTLY IN THE BRAIN

Nina Heins¹, Jennifer Pomp¹, Karen Zentgraf², Markus Raab³, Ricarda Schubotz¹, ¹University of Muenster, Germany, ²Department of Movement Science and Training in Sports, Inst, ³German Sport University Cologne

TALK 14: PATIENTS WITH HEMISPHERECTOMIES EVINCE INTACT VISUAL RECOGNITION BEHAVIORS

Michael C. Granovetter¹, Leah Etensohn¹, Marlene Behrmann¹, ¹Carnegie Mellon University

TALK 15: LEARNING AND REWARD THROUGH A NEW MUSICAL SYSTEM

Matthew Sachs¹, Euan Zhang¹, Dana Walker¹, Psyche Loui¹, ¹Northeastern University

General Information

Abstracts

Poster abstracts can be found in the Program PDF which is downloadable from www.cogneuroscience.org.

Business Center

The Business Center is located on the second floor. The following services are available: Copy Services, Fax Services, On-Site Computers, Internet Access, Typing Services, and Shipping Services (UPS and FedEx).

Catering

Catering will be available during the conference and is included in the registration fee. Please refer to the table below for the catering times.

Saturday, March 14

Coffee Service, 3:00 – 3:30 pm, *Exhibit Hall C*
Welcome Reception, 6:00 – 7:00 pm, Constitution Ballroom & Grand Ballroom Foyer

Sunday, March 15

Continental Breakfast, 8:00 – 8:30 am, *Exhibit Hall C*
Coffee Service, 2:30 – 3:00 pm, *Exhibit Hall C*

Monday, March 16

Continental Breakfast, 8:00 – 8:30 am, *Exhibit Hall C*
Coffee Service, 3:30 – 4:00 pm, *Exhibit Hall C*

Tuesday, March 17

Continental Breakfast, 8:00 – 8:30 am, *Exhibit Hall C*

Certificate of Attendance

To receive a Certificate of Attendance please visit the Registration Counter on the Grand Ballroom Foyer of the Sheraton Boston Hotel at the end of meeting. If you require any changes, we will be happy to email/mail a copy after the meeting. See also Receipts.

Code of Conduct

The Cognitive Neuroscience Society is committed to providing a safe and professional environment during our annual meeting. All CNS members are expected to conduct themselves in a business-like and professional manner. It is unlawful to harass a person or employee because of that person's sex or race. Harassment is defined by hostile or offensive behavior towards another.

Communications Open House

CNS Public Information Officer Lisa Munoz will answer your questions, give advice, and talk about the communication and press services CNS offers. No appointment needed. Just grab some breakfast and drop in.

Sunday March 15, 8:30 am-10am, *Kent Room*

Monday March 16, 8:30 am-10am, *Kent Room*

Contact Us

To contact us onsite, visit the Registration Counter in the Grand Ballroom Foyer of the Sheraton Boston Hotel or send an email to meeting@cnsmeeting.org We will respond to your email at our soonest opportunity.

Disclaimer

The Program Committee reserves the right to change the meeting program at any time without notice. Please note this program is correct at time of print.

Exhibit Hall

The conference exhibit is located in Exhibit Hall C of the Sheraton Boston Hotel. Located in this room are the posters, exhibit booths, and catering. The Exhibit Hall is open to all attendees at the following times:

Saturday, March 14	2:30 pm – 6:00 pm
Sunday, March 15	8:00 am – 5:00 pm
Monday, March 16	8:00 am – 6:00 pm
Tuesday, March 17	8:00 am – 12:00 pm

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The Sheraton Boston Hotel is our exclusive Hotel for the CNS 2020 Annual Meeting and where all CNS 2020 meeting events will be held. Sheraton Boston Hotel located at 39 Dalton Street, Boston, MA, 02199.

Hotel Restaurants

Sidebar & Grille is a casual restaurant and hotel lounge. American Market, offers a selection of freshly made, grab-and-go items. Both can be found in the hotel lobby.

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CNS attendees will receive complimentary wireless internet, ideal for web browsing, social networking, and checking emails only, within the meeting rooms and exhibit hall.

Member Services

The member services desk is located at the Registration Counter on the Grand Ballroom Foyer of the Sheraton Boston Hotel. The member services desk will be open at the following times:

Saturday, March 14	11:30 am – 6:15 pm
Sunday, March 15	7:30 am – 5:30 pm
Monday, March 16	8:00 am – 5:30 pm

Mobile Phones

Attendees are asked to silence their mobile phones when in sessions.

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Poster Sessions

Poster sessions are scheduled on Saturday, March 14, Sunday, March 15, Monday, March 16, and Tuesday, March 17. The presenting author must be present during the assigned session and other authors may be present to answer questions. The poster sessions are in the Exhibit Hall C of the Sheraton Boston Hotel. Badges are required at all times. Do not leave personal items in the poster room.

Program Booklet

The Program is offered as a PDF on our website. Every effort has been made to produce an accurate program. If you are presenting at the conference, please confirm your presentation times as listed in this

program. Attendees will also have the option to view the program by downloading it from our website after the meeting has concluded.

Receipts

You received two receipts via email, one at the time of purchase and a second with your registration confirmation. Please email the registration desk if you require an additional copy. See also Certificate of Attendance.

Reception

The Welcome Reception will be held in the Constitution Ballroom & Grand Ballroom Foyer, from 6:00-7:00 pm on Saturday, March 14, directly following the Keynote Address.

Registration

The Registration Counter is located in the Grand Ballroom Foyer of the Sheraton Boston Hotel. The Registration Counter will be open at the following times:

Saturday, March 14	11:30 am – 6:15 pm
Sunday, March 15	7:30 am – 5:30 pm
Monday, March 16	8:00 am – 5:30 pm
Tuesday, March 17	8:00 am – 3:00 pm

Speakers

All speakers must register and wear name badge to present. Please ensure that you are available in your presentation room at least thirty minutes before the start of the session. See also Audiovisual equipment for Talks.

Transportation

The T, will take you to multiple different locations throughout Massachusetts. Fare runs between \$1.70 - \$7.00.

Bus Service: Boston Express Bus, C&J Bus Lines, Concord Coach Lines, Dartmouth Coach, Peter Pan Bus, Plymouth & Brockton Bus CO.. Prices ranging from \$15-\$20.

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Invited-Symposium Sessions

#	Title	Date	Time	Location
1	MAKING SENSE OUT OF BIG DATA IN COGNITIVE NEUROSCIENCE	Sunday, March 15	10:00 am - Noon	Back Bay ABCD
2	THE ROLE OF CAUSAL INFERENCE FOR PERCEPTUAL DECISIONS AND ADAPTIVE BEHAVIOR	Sunday, March 15	10:00 am - Noon	Grand Ballroom
3	CONTEMPORARY APPROACHES TO EMOTION REPRESENTATIONS	Tuesday, March 17	10:00 am - Noon	Back Bay ABCD
4	NOVEL APPROACHES TO NON-INVASIVE BRAIN STIMULATION	Tuesday, March 17	10:00 am - Noon	Grand Ballroom

Invited Symposium Session 1

MAKING SENSE OUT OF BIG DATA IN COGNITIVE NEUROSCIENCE

Sunday, March 15, 10:00 am - Noon, Back Bay ABCD

Chair: Deanna M. Barch, Washington University in St. Louis

Speakers: Carsen Stringer, Eve Marder, Konrad Kording, Randy L. Buckner

This symposium will illustrate both the promises and potential pitfalls of increasing availability of “big data” at many scales that can be used to understand brain and behavioral functions across species. The first three talks will illustrate a range of use cases where very high dimensional data is being used to generate novel insights in the function of neural systems and how these generate behavior. The final talk will illustrate some of the challenges we face in this new era, ranging from the need to restructure training, how do we share data and credit in ways that incentivize the process, and how do we best focus our resources to optimize the balance of breadth and depth in data generation and analysis.

TALK 1: HIGH-DIMENSIONAL STRUCTURE OF SIGNAL AND NOISE IN 20,000 NEURON RECORDINGS

Carsen Stringer, Howard Hughes Medical Institute, Janelia Research Campus

Even in the absence of sensory inputs, the brain produces structured activity, which can be as large as or larger than sensory-driven activity. Using large-scale neural recordings of thousands of neurons in mouse visual cortex, we found that this seconds-long neural variability was driven by brainwide behavioral signals. This behaviorally-driven neural activity continued during visual stimulus presentations, creating variable neural responses to identical visual stimuli. Although large, the ongoing noise did not impair the encoding of stimuli at the population level. We found that oriented stimuli with an orientation difference of less than 1° could be accurately discriminated at $>90\%$ correct on a single trial basis. In addition to being accurate, the stimulus-evoked population activity was high-dimensional. The correlation structure across neurons obeyed a power law: the n -th dimension of the correlation matrix contained variance in proportion to $1/n$. We developed a theory to explain this

structure based on the assumption that neural responses to stimuli are smooth. A smooth neural code may be robust to small changes in visual stimuli, such as changes in viewpoint or lighting. Using large-scale neural recordings and new analytical techniques, we were able to characterize some of the fundamental features of visual cortical circuits in mice.

TALK 2: DIFFERENTIAL RESILIENCE TO PERTURBATION OF CIRCUITS WITH SIMILAR PERFORMANCE

Eve Marder, Brandeis University

Experimental work on the crustacean stomatogastric ganglion (STG) has revealed a 2-6 fold variability in many of the parameters that are important for circuit dynamics. Theoretical work shows that similar network performance can arise from diverse underlying parameter sets. Together, these lines of evidence suggest that each individual animal, at any moment in its life-time, has found a different solution to producing “good enough” motor patterns for healthy performance in the world. This poses the question of the extent to which animals with different sets of underlying circuit parameters can respond reliably and robustly to environmental perturbations and neuromodulation. We use both experimental and computational methods to study the effects of temperature, pH, high K^+ concentrations, and neuromodulation on the networks of the STG from the crab, *Cancer borealis*. While all animals are remarkably robust and reliable to substantial perturbations, extreme perturbations produce “crashes”. These crashes vary substantially across the animal and in models with different underlying parameter differences. The idiosyncratic nature of the crashes provides heuristic insight into the diverse nature of individuals to extreme perturbations. The underlying parameter differences across the animals in a population and their differences in crash behavior provide a necessary substrate for evolution.

TALK 3: CAUSAL INFERENCE WITH BIG DATA SETS

Konrad Kording, University of Pennsylvania

Our datasets are big. But we usually want to ask causal questions. We want to ask how the brain works. Or figure out if one way of treating patients is superior to other ways of treating them. However, most of the approaches that are established in the field focus on correlational data analyses. In my talk I will review causal inference techniques that

are useful in the field and that can be adapted to ask a broad range of questions.

TALK 4: CHALLENGES AND OPPORTUNITIES IN THE ERA OF BIG DATA

Randy L Buckner, Harvard University and Massachusetts General Hospital

We are in an era of unprecedented access to data. We have available genetic samples of more than a million, multiple human neuroimaging datasets that will each soon approach 100,000 samples, and pooled meta-analytic estimates of genetic risk for illness and brain responses that aggregate hundreds of independent studies. The opportunities of this new era include the reinvention of the field with reliable and generalizable discoveries, the culling of spurious genetic associations to behavior and disease, and the revealing of links across multiple data types that provide unexpected insights into biological mechanisms of behavior. But they also include the challenges of how do we train the next generation of scholars and navigate the balance between the impetus of the individual lab and the shared efforts of community projects. What will research labs look like in the future and how will scholars specialize? How will we give credit to data producers, data integrators, as well as those who do the final analyses? And how will the traditional academic research enterprise interface with the leaders of data science in for-profit companies? Case studies will illustrate these opportunities and challenges in the hopes of opening a broad discussion of these topics.

Invited Symposium Session 2

THE ROLE OF CAUSAL INFERENCE FOR PERCEPTUAL AND ADAPTIVE BEHAVIOR

Sunday, March 15, 10:00 am - Noon, Grand Ballroom

Chair: Christoph Kayser, Bielefeld University

Speakers: Rachel Denison, Sam Gershman, Uta Noppeney, Christoph Kayser

Adaptive behavior in complex environments requires an understanding of the causal relations between the sensory features arising from the multiple objects surrounding us. This symposium investigates the computational and neural mechanisms underlying sensory causal inference processes from different angles, focusing on the flexible integration of multisensory evidence, the constraints imposed by the available cognitive sources and the implications for adaptive behavior such as learning.

TALK 1: INFERRING INTERNAL CAUSES OF UNCERTAINTY TO IMPROVE DECISION MAKING

Rachel Denison, NYU

Uncertainty arises not only from the properties of sensory input but also from internal causes, such as varying levels of attention. However, it was unknown whether humans appropriately infer and

adjust for such cognitive sources of uncertainty during perceptual decision making. We found that, when uncertainty was relevant for performance, human categorization and confidence decisions took into account uncertainty related to attention. Category and confidence decision boundaries shifted as a function of attention in an approximately Bayesian fashion. The observer's attentional state on each trial therefore contributed probabilistically to the decision computation. This ability to infer and use attention-dependent uncertainty is adaptive: it should improve perceptual decisions in natural vision, in which attention is unevenly distributed across a scene.

TALK 2: CAUSAL INFERENCE IN REINFORCEMENT LEARNING **Sam Gershman, Harvard University**

The impact of feedback can have different effects on learning depending on one's beliefs about the causal structure of the environment. In particular, belief updating in response to good and bad outcomes can be asymmetric, and this asymmetry is predicted by a Bayesian reinforcement learning model that takes into account hidden causes that mediate between choice and feedback. Consistent with this model, neural learning signals in the striatum appear to be "gated" by causal beliefs. Finally, I will discuss evidence that the ability to use causal knowledge to guide learning emerges over the course of development, and can be dissociated from explicit causal beliefs.

TALK 3: CAUSAL INFERENCE IN MULTISENSORY PERCEPTION **Uta Noppeney, University of Birmingham**

Our senses are constantly bombarded with myriads of diverse signals. Transforming this sensory cacophony into a coherent percept of our environment relies on solving the causal inference problem - deciding whether signals come from a common cause and should be integrated, or instead be treated independently. Combining psychophysics, fMRI/EEG and computational modelling our results suggest that the brain arbitrates between sensory integration and segregation consistent with the principles of Bayesian Causal Inference by dynamically encoding multiple perceptual estimates at distinct levels of the cortical hierarchy. Only at the top of the hierarchy in anterior parietal cortices were signals integrated weighted by their bottom-up sensory reliabilities and top-down task-relevance into spatial priority maps that take into account the world's causal structure.

TALK 4: THE PERSISTENT INFLUENCE OF CAUSAL INFERENCE IN MULTISENSORY PERCEPTION

Christoph Kayser, Bielefeld University

When combining multi-sensory information, we need to flexibly select and combine cues that arise from a common origin whilst avoiding distraction from irrelevant inputs. We asked how the brain implements such inference process by studying the combination of audio-visual information in ventriloquist-like tasks and how such

sensory integration shapes the perception of subsequent unisensory stimuli. Our results unveil a systematic spatio-temporal cascade of the relevant computations, starting with early segregated unisensory representations, continuing with sensory fusion in parietal-temporal regions and culminating as causal inference in the frontal lobe. These findings suggest that inferior frontal regions guide flexible integrative behaviour based on causal inference within a trial, but also point to parietal regions as central for combining sensory evidence over time, such as from trial to trial.

Invited Symposium Session 3

CONTEMPORARY APPROACHES TO EMOTION REPRESENTATIONS

Tuesday, March 17, 10:00 am - Noon, Back Bay ABCD

Chair: Kevin S. LaBar, Duke University

Speakers: Kevin S. LaBar, Tor D. Wager, Dacher Keltner, and Rachael E. Jack

Emotions are complex constructs that exert powerful influences over cognition and comportment. Despite progress in understanding select facets of emotional processing, it remains unclear how specific emotions like anger, sadness, or contentment are differentiated in their subjective experience, neurophysiological representation, and social communication. This symposium brings together experts who are addressing this key, unresolved issue in affective science using contemporary, data-driven computational methods that are overturning old debates about the structure of emotions. Kevin LaBar will open the symposium to discuss how machine learning and stochastic modeling tools facilitate the decoding of emotion categories from fMRI data, including spontaneous emotions and their temporal dynamics. Tor Wager will present findings from a convolutional neural network approach to show how schemas of multiple emotion categories arise from distributed codes in the visual hierarchy. Dacher Keltner will combine computational and social functional approaches to map the complex relationships among a variety of emotions elicited by naturalistic stimuli. Finally, Rachael Jack will close the symposium by demonstrating how data-driven modeling provides novel insights into cultural similarity and variation in dynamic facial expressions of emotion, with implications for improving affective communication in social robots.

TALK 1: DECODING SPONTANEOUS EMOTIONS AND MODELING THEIR TEMPORAL DYNAMICS FROM RESTING-STATE fMRI

Kevin S. LaBar, Duke University

Affective states dynamically unfold in the background of ongoing mental activity and are triggered by spontaneous thoughts during mind wandering. The emotion specificity and duration of these states are hypothesized to promote susceptibility to mental health disorders. However, it is challenging to identify emotion-specific signals

embedded in resting-state neural data. Furthermore, it is unknown whether the human brain reliably transitions among multiple emotional states at rest and how psychopathology alters these intrinsic affect dynamics. We combined machine learning and stochastic modeling to investigate the chronometry of spontaneous brain activity indicative of six emotions and a neutral state. We derived fMRI information maps of these emotions from our previous decoding study of emotion inductions, and used them to pattern classify the resting-state time series. We showed that the frequency distribution of resting-state classifications across emotion categories predicted individual differences in on-line subjective feelings and off-line mood ratings and personality traits. We investigated the temporal dynamics of spontaneous transitions across these emotions using stochastic modeling and validated results across two population cohorts. Our findings indicate that intrinsic emotional brain dynamics are effectively characterized as a discrete time Markov process, with affective states organized around a neutral hub. The centrality of this network hub is disrupted in individuals with psychopathology, whose brain state transitions exhibit greater inertia and less frequent resetting from emotional to neutral states. These results indicate how the brain signals spontaneous emotions and how alterations in their temporal dynamics contribute to compromised mental health.

TALK 2: EMOTION SCHEMAS ARE REPRESENTED IN THE HUMAN VISUAL SYSTEM: EVIDENCE FROM fMRI AND CONVOLUTIONAL NEURAL NETWORKS

Tor D. Wager, Dartmouth College

Emotions are thought to be canonical responses to situations ancestrally linked to survival or the well-being of an organism. Although sensory elements do not fully determine the nature of emotional responses, they should be sufficient to convey the schema or situation that an organism must respond to. However, few computationally explicit models describe how combinations of stimulus features come to evoke different types of emotional responses, and, further, it is not clear that activity in sensory (e.g., visual) cortex contains distinct codes for multiple classes of emotional responding in a rich way. Here we develop a convolutional neural network that accurately decodes images into 11 distinct emotion categories. We validate the model using over 25,000 images and movies and show that image content is sufficient to predict the category, valence, and arousal of human emotion ratings. In two fMRI studies, we demonstrate that patterns of human visual cortex activity encode emotion category-related model output and can decode multiple categories of emotional experience. Comparing decoding performance across multiple brain regions, we find that emotion schemas are best characterized by distributed codes in the occipital lobe and that redundant information about schemas is contained in other brain systems. These results indicate that rich, category-specific emotion representations are embedded within the human visual system. Further, they suggest that psychological and computational

accounts of emotion should explain the sensory qualities that are naturally associated with emotional outcomes, as well as those that are reliably learned through experience and influenced by culture.

TALK 3: MAPPING THE PASSIONS: INSIGHTS FROM COMPUTATIONAL AND SOCIAL FUNCTIONAL APPROACHES

Dacher Keltner, University of California, Berkeley

In this talk I detail convergent insights from computational and social functional approaches to emotion. In doing so, I will introduce a new methodological approach predicated on: the study of vast array of naturalistic stimuli, the sampling of a wide range of emotional states, observer ratings from discrete and dimensional perspectives, and open-ended statistical and data visualization techniques that map complex emotion spaces. Empirical work guided by these methods converges on four ideas. First, more open-ended techniques in studies of facial expression, vocal bursts, prosody, lexical terms, music, and spontaneous experience reveal upwards of 20 distinct states. I will illustrate this with recent studies of awe, compassion, and embarrassment. Second, emotion categories are heterogenous, but in systematic ways. Each emotion category—awe, sympathy, fear, amusement, embarrassment—includes variations in experience and expression. Third, the boundaries between emotion categories are not discrete. Instead, emotion categories such as or love and desire or awe and interest, are bridged by gradients of meaning, which likely account for transitions between emotional states. Finally, discrete emotion categories organize the representation of emotion more so than appraisals of valence and arousal. I will conclude by considering what the methods and findings summarized in the talk mean for the study of emotion-related physiology as well as individual and cultural variations.

TALK 4: MODELLING DYNAMIC FACIAL EXPRESSIONS OF EMOTION ACROSS CULTURES USING DATA-DRIVEN METHODS

Rachael E. Jack, University of Glasgow

Understanding how facial movements communicate emotions has been a source of intense investigation for over a century. However, addressing this question is empirically challenging due to the sheer number and complexity of facial expressions the human face can make. Traditional approaches primarily using theory-driven methods and hypothesis testing, while advancing knowledge, have also restricted understanding including via Western-centric biases. Now, new technologies and data-driven methods developed in interdisciplinary teams alleviate these constraints, giving real traction to this complex task and delivering novel insights. Here, we showcase one such approach that combines social and cultural psychology, vision science, mathematical psychology, and 3D dynamic computer graphics to objectively model dynamic facial expressions of emotions in different cultures. Using this approach, we have provided precise

characterizations of what face movements are cross-cultural and culture-specific, and the emotion information they convey including broad dimensional information (e.g., positive, high arousal) and specific (e.g., delighted) emotions. Specifically, we show that four, not six, core expressive patterns are cross-cultural, and that facial expressions transmit signals in an evolving, broad-to-specific structure over time. Our work challenges longstanding dominant views of universality and forms the basis of a new theoretical framework that has the potential to unite different views (i.e., nature vs. nurture; dimensional vs. categorical). Finally, we show direct transference of this knowledge of facial expressions to social robots by providing a generative syntactical model for social face signaling, thus providing new opportunities for Psychology to play a central role in designing digital agents of the future.

Invited Symposium Session 4

NOVEL APPROACHES TO NON-INVASIVE BRAIN STIMULATION

Tuesday, March 17, 10:00 am - Noon, Grand Ballroom

Chair: Jérôme Sallet, INSERM, Lyon, France and University of Oxford, UK

Speakers: Nir Grossman, Jérôme Sallet, Chris Butler, Elisa Konofagou

To understand brain circuits it is necessary both to record and manipulate their activity. The gold standard approach in cognitive neurosciences to attribute a cognitive function to a brain region relies on causation methods. Those methods often invasive are therefore principally used in animal models. Alternative so-called non-invasive approaches despite allowing addressing questions directly about the human brain are often limited by their spatial resolution, or by the brain areas that could be targeted. This symposium will bring together researchers developing new electrical or ultrasound stimulation tools. Innovations could enable targeting deep brain structures, improving spatial resolution or proposing a new approach for neuropharmacological studies. We will aim to show the potential translational approach from animal research to human applications of these novel approaches.

TALK 1: NONINVASIVE DEEP BRAIN STIMULATION VIA TEMPORALLY INTERFERING ELECTRIC FIELDS

Nir Grossman, Imperial College London, UK

Electrical brain stimulation is a key technique in research and clinical neuroscience studies, and also is in increasingly widespread use from a therapeutic standpoint. However, to date all methods of electrical stimulation of the brain either require surgery to implant an electrode at a defined site, or involve the application of non-focal electric fields to large fractions of the brain. We report a noninvasive strategy for electrically stimulating neurons at depth. By delivering to the brain

multiple electric fields at frequencies too high to recruit neural firing, but which differ by a frequency within the dynamic range of neural firing, we can electrically stimulate neurons throughout a region where interference between the multiple fields results in a prominent electric field envelope modulated at the difference frequency. We validated this temporal interference (TI) concept via modeling and physics experiments, and verified that neurons in the living mouse brain could follow the electric field envelope. We demonstrate the utility of TI stimulation by stimulating neurons in the hippocampus of living mice without recruiting neurons of the overlying cortex. Finally, we show that by altering the currents delivered to a set of immobile electrodes, we can steerably evoke different motor patterns in living mice.

TALK 2: PROBING DECISION-MAKING CIRCUITS IN PRIMATES USING TRANSCRANIAL ULTRASOUND NEUROMODULATION

Jérôme Sallet, INSERM, Lyon, France and University of Oxford, UK, Co-authors: Jean-Francois Aubry¹, Davide Folloni², Lennart Verhagen², Nima Khalighinejad², Matthew Rushworth², Institut Langevin, Paris, France; ¹ University of Oxford

Transcranial ultrasonic stimulation (TUS) is an emerging method whereby low-intensity ultrasound is delivered through the skull to brain tissue resulting in reversible disruption of neuronal activity at the targeted site. Although the exact mechanisms by which ultrasound effects neuromodulation are not fully characterized, the goal of this presentation is to show that the technique is safe and can be used to modulate brain activity and behaviour with a good anatomical precision. TUS neuromodulatory effects were measured by examining relationships between activity in each targeted area and the rest of the brain using resting-state functional magnetic resonance imaging (fMRI) collected under anaesthesia. Importantly those targeted regions could either be superficial cortical areas (preSMA, Frontopolar cortex), or deep subcortical structures (Amygdala, Basal Forebrain). With the specific protocol used, dissociable and focal effects on neural activity could not be explained by auditory confounds. Furthermore, offline effects were shown to last for more than two hours post-stimulation. With such long lasting effect, we were able to test in separate experiments for the specific contribution of perigenual ACC to counterfactual reasoning and of the lateral orbitofrontal cortex to credit assignment.

TALK 3: ULTRASONIC MODULATION OF HIGHER ORDER VISUAL PATHWAYS IN HUMANS

Chris Butler, University of Oxford and Imperial College London, UK, Co-authors: Braun V, Blackmore J, Cleveland R University of Oxford

Transcranial ultrasonic stimulation (TUS) has been used to target primary sensory regions of the human brain. Its effect on higher-order cortical areas has not been studied. Moreover, concerns have recently arisen that TUS effects may be driven indirectly through stimulation of

early auditory pathways. We investigated whether TUS can modulate higher-order visual processing both in superficial (middle temporal area (MT)) and deep (fusiform face area (FFA)) regions. We further examined the efficacy of auditory stimulus masking. Magnetic resonance imaging was used to map skull anatomy and functional regions of interest (MT and FFA) for each participant (n=16). Segmented imaging datasets formed the basis of 3D ultrasound simulations to determine transducer placements and source amplitudes. Thermal simulations ensured that temperature rises were <0.5 °C at the target and <3 °C in the skull. TUS (500 kHz, 300 ms 50% duty cycle bursts) was applied to MT or FFA whilst participants performed a visual motion or a face identity detection task. To control for non-specific effects, auditory masking was applied during the tasks. EEG data were collected throughout. Auditory masking reduced subjective stimulation detection to chance level and abolished auditory evoked potentials. Ultrasonic stimulation of MT led to facilitation of visual motion detection in the contralateral hemifield, with no effect upon face identity detection. Stimulation of FFA did not affect visual motion detection performance. We show that TUS can be used in humans to modify behaviour and electrophysiological activity in higher-order visual pathways in a task-specific and anatomically precise manner.

TALK 4: NONINVASIVE CNS MODULATION USING ULTRASOUND WITH OR WITHOUT BLOOD-BRAIN BARRIER OPENING

Elisa Konofagou, Columbia University, NYC

The brain is a formidable frontier for modulation of both itself and for other organs in the body. Over the past several decades, ultrasound has been consistently shown to successfully probe brain activity transcranially. Our group has been studying the noninvasive stimulation and inhibition of the central nervous system both with and without blood-brain barrier opening. When focused ultrasound is applied with intravenously administered microbubbles, the blood-brain barrier opens and has been shown to improve cognitive performance such as spatial memory in mice and touch accuracy and reaction time in non-human primates, that lasts hours to months after opening. Without BBB opening or microbubbles, our group has shown that focused ultrasound is capable of noninvasively stimulating lateralized paw movement as well as sensory responses such as pupil dilation and eye movement when specific cortical and subcortical regions are targeted, demonstrating that ultrasound can trigger both motor and sensory brain responses. An overview of the aforementioned findings in rodents and non-human primates as well as clinical translation will be presented.

Symposium Sessions

#	Title	Date	Time	Location
1	STUDYING THE MIND BY MANIPULATING BRAIN NETWORKS	Sunday, March 15	3:00 – 5:00 pm	Constitution Ballroom
2	FINANCES AND FEELINGS: THE AFFECTIVE NEUROSCIENCE OF SES	Sunday, March 15	3:00 – 5:00 pm	Back Bay A&B
3	PRESSING THE PLAY BUTTON: SEQUENTIAL NEURAL REPLAY OF HUMAN MEMORIES	Sunday, March 15	3:00 – 5:00 pm	Back Bay C&D
4	FROM WIKIPEDIA SEARCHES TO SINGLE CELL RECORDING: UNCOVERING THE MECHANISMS OF INFORMATION-SEEKING	Sunday, March 15	3:00 – 5:00 pm	Grand Ballroom
5	DEVELOPMENT AND PLASTICITY OF HIGH-LEVEL VISION AND COGNITION	Monday, March 16	10:00 am - Noon	Constitution Ballroom
6	MOVING FROM A DEFICIT-ORIENTED TO A PREVENTATIVE MODEL IN EDUCATION: EXAMINING NEURAL CORRELATES FOR READING DEVELOPMENT	Monday, March 16	10:00 am - Noon	Back Bay A&B
7	INTEGRATING THEORY AND DATA: USING COMPUTATIONAL MODELS TO UNDERSTAND NEUROIMAGING DATA	Monday, March 16	10:00 am - Noon	Back Bay C&D
8	THE MEETING OF PERCEPTION AND MEMORY IN THE BRAIN	Monday, March 16	10:00 am - Noon	Grand Ballroom
9	CORTICAL GRADIENTS AND THEIR ROLE IN COGNITION	Tuesday, March 17	1:30 - 3:30 pm	Constitution Ballroom
10	SPECIFICS AND GENERALITIES: BEYOND THE SEMANTIC-EPISODIC DISTINCTION	Tuesday, March 17	1:30 - 3:30 pm	Back Bay A&B
11	DEEP DATA: THE CONTRIBUTION OF CASE STUDIES AND SPECIAL POPULATIONS IN THE ERA OF BIG DATA	Tuesday, March 17	1:30 - 3:30 pm	Back Bay C&D
12	WHAT DETERMINES CATEGORY SELECTIVITY IN THE CORTEX?	Tuesday, March 17	1:30 - 3:30 pm	Grand Ballroom

Symposium Session 1

STUDYING THE MIND BY MANIPULATING BRAIN NETWORKS

Sunday, March 15, 3:00 – 5:00 pm, Constitution Ballroom

Chair: Joel Voss, Northwestern University

Speakers: Gesa Hartwigsen, Thorsten Kahnt, Michael Fox, Joel Voss

Cognition and emotion rely on large-scale distributed brain networks. However, there is little consensus on how these networks are organized, how their constituent regions interact to achieve function, and other key mechanistic questions. The dominant method for addressing these issues is to measure the natural relationships of activity among network regions while they are engaged by relevant processing demands. A complementary strategy is to utilize more direct functional probes by examining changes in cognition and emotion that result from network perturbations. Speakers in this symposium will discuss recent advances in this area using a network-based framework for noninvasive brain stimulation. They will describe new insights from experiments that use stimulation to probe the network basis of language, decision making, mood, and memory. Across all of these areas, the network-based stimulation framework has yielded strikingly specific, predictable, and reliable influences on targeted networks and their associated functions. Further, there are

clear applications of these findings for the treatment of neurologic and psychiatric symptoms that result from network damage and dysfunction. By bringing together researchers using this approach to investigate different functional domains, we hope to foster discovery of general principles governing network control by brain stimulation and of general mechanisms by which brain networks accomplish cognition and emotion.

TALK 1: NEUROSTIMULATION FOR FLEXIBLE LANGUAGE-NETWORK REDISTRIBUTION IN HEALTHY AND LESIONED BRAINS

Gesa Hartwigsen, Max Planck Institute for Human Cognitive and Brain Sciences

Language is sustained by large-scale networks in the human brain. Brain lesions such as stroke often severely affect language function and network dynamics. However, the adaptive potential of the brain to compensate for lesions is poorly understood. In this talk, I will present novel evidence on the potential for short-term reorganization in the healthy and lesioned language network. First, I will show that ?virtual lesions? induced by neurostimulation to key language areas in the healthy brain increase the functional contribution of neighbouring language areas and domain-general control regions. Secondly, I will present a new study emphasizing the adaptive role of homologous right-hemispheric areas in the lesioned language network. As a main

finding, perturbation of the left posterior prefrontal cortex in patients with lesions in the left temporo-parietal cortex selectively delayed phonological decisions and decreased task-related activity. The individual response delay was correlated with the upregulation of the lesion homologue, reflecting compensation for the disruption. Moreover, stronger individual tract integrity of the right superior longitudinal fascicle was associated with lesser impairment. These results provide evidence for functional and structural underpinnings of plasticity in the lesioned language network, and a compensatory role of the right hemisphere. I will integrate these data into a model for flexible redistribution in the language network, arguing that compensation for brain lesions may occur both within process-specific language networks and across networks for different cognitive functions. Finally, I will illustrate how this framework can be used to advance stimulation-based treatment of language disorders.

TALK 2: NETWORK STIMULATION TO TEST THE HUMAN ORBITOFRONTAL CORTEX ROLE IN INTERFERENCE-BASED DECISION MAKING

Thorsten Kahnt, Northwestern University Feinberg School of Medicine

Research across species has shown that the orbitofrontal cortex (OFC) is important for decision making. However, it is less clear what specific computations are carried out in this region that make it so important for this function. Recent work from our lab and others has shown that OFC activity is correlated with expectations about specific outcomes. Here we present evidence that these specific expectations are required for decisions that are based on inferred or simulated outcomes, as opposed to behavior that can be based on direct experience alone. Because of its anatomical location, the OFC is not directly accessible to transcranial magnetic stimulation (TMS). However, previous work suggests that TMS affects brain activity not only locally at the stimulation site but also in areas that are functionally connected to the stimulated region. In our experiments, we apply continuous theta burst stimulation (cTBS) to stimulation sites in lateral PFC that are individually selected to be maximally functionally connected to the OFC. We show that such OFC-targeted cTBS selectively disrupts choices that require subjects to infer outcomes, without affecting choices that can be based on direct experiences alone. These behavioral deficits are related to cTBS-induced decreases in the functional connectivity between the OFC and its cortical network. These findings demonstrate the feasibility of indirectly targeting human OFC using TMS and suggest that the OFC contributes to decision making by representing a cognitive map of the task environment that can be used to simulate outcomes when direct experience is missing.

TALK 3: USING THE HUMAN BRAIN CONNECTOME TO IDENTIFY BRAIN CIRCUIT TARGETS FOR DEPRESSION SYMPTOMS

Michael Fox, Harvard Medical School

Therapies that directly target brain circuits have the potential to treat medication-refractory psychiatric symptoms such as depression. However, antidepressant response to surgical lesions, deep brain stimulation (DBS), and transcranial magnetic stimulation (TMS) has been highly variable across different patients. This variability has resulted in modest overall effect sizes and failed clinical trials. However, variability also provides an opportunity to identify optimal therapeutic targets for specific symptoms, symptom clusters, and disorders. Specifically, incidental variability in the precise location of each patient's treatment site can be mapped to underlying brain circuits using a wiring diagram of the human brain termed the human connectome. I will describe how this approach can be applied to brain lesions, DBS sites, and TMS sites to identify better brain circuit targets for depression. Recent findings suggest that individualized targeting can be used to tease apart distinct circuits that affect distinct symptom clusters when treated with TMS. In one study, TMS of one target was associated with improvement in dysphoric symptoms, such as sadness and anhedonia, whereas another target was associated with improvement in anxiety and somatic symptoms. These findings indicate that circuit-based approaches for influencing brain function can yield remarkably specific outcomes even for complex mood disorders. This supports the use of such methods for personalized neuromodulatory therapies as well as for investigations into the brain basis of mood and emotion.

TALK 4: STIMULATING THE HIPPOCAMPAL NETWORK TO TEST EPISODIC MEMORY MECHANISMS

Joel Voss, Northwestern University Feinberg School of Medicine

Episodic memory depends on the hippocampus and its coordination with a distributed network of interconnected structures. Recent findings indicate that this hippocampal network can be modulated using network-targeted transcranial magnetic stimulation. This offers the powerful opportunity to directly test hypothesized functional properties of the hippocampal network by measuring the memory changes that occur in response to stimulation. I will describe the progress that has been made in this area to date. Increases in fMRI activity correlation due to stimulation predict corresponding increases in episodic memory ability, indicating that successful performance relies on the interregional coordination of hippocampal network activity. Furthermore, distinct hypothesized posterior-medial and anterior-temporal functional network components are differentially modulated by stimulation, thereby demonstrating their functional independence. The prominent hypothesis that hippocampal network coordination for memory occurs via the synchronization of activity in the theta-frequency band has also been supported by network-targeted stimulation, which more robustly influences hippocampal network activity and memory when delivered using theta patterns versus non-theta patterns. Finally, I will describe our recent work using theta-patterned stimulation during simultaneous fMRI scanning to

measure the immediate impact of stimulation on the hippocampus and its role in the network-wide effects of stimulation. Collectively, these findings suggest that it is possible to cause highly specific changes in episodic memory by appropriately targeting portions of the hippocampal network with noninvasive stimulation, yielding new insights regarding brain mechanisms of memory.

Symposium Session 2

FINANCES AND FEELINGS: THE AFFECTIVE NEUROSCIENCE OF SES

Sunday, March 15, 3:00-5:00 pm, Back Bay A&B

Chair: Martha Farah, University of Pennsylvania

Speakers: Moriah Thomason, Joan Luby, Robin Nusslock, Pilyoung Kim

Depression is twice as common at the lowest income levels than at the highest. Stands to reason, you might say; no need for neuroscience to understand why. But people who are poor during childhood and become more affluent as adults continue to be at elevated risk. It appears that early life socioeconomic status (SES) influences brain development in ways that have lifelong effects on our emotional responses to positive and negative events and to social situations, as well as our ability to regulate our emotions. This impacts rates of psychopathology, especially affective disorders, and also levels of well-being within the healthy population. It does so by mechanisms that begin prenatally and operate in postnatal life under the influence of factors such as stress and parenting practices. The neural differences associated with SES are even associated with parents' feelings and behaviors toward the next generation, their own children. In this symposium we will hear from four leaders in the affective neuroscience of SES, whose work spans brain activity in prenatal life, early childhood, later childhood to adulthood, and parent-child processes. While covering different periods of life, the presentations will be unified by a number of common themes: psychosocial and physiological stress, limbic and prefrontal systems and networks, and positive feedback loops operating within individuals and across generations. A final discussion will solicit thoughts from the speakers and the audience about ways of breaking cycles of disadvantage and despair and promoting well-being for all.

TALK 1: NEURAL CORRELATES OF POVERTY OBSERVED IN THE HUMAN FETAL BRAIN: IMPLICATIONS FOR POSTNATAL WELLBEING

Moriah Thomason, NYU/Langone Medical Center

Prenatal poverty is associated with increased risk for preterm birth, intrauterine growth restriction, neonatal/infant death, and also cognitive and affective regulation in childhood. Here, we address whether prenatal poverty relates to formation of fetal brain circuitry that will support emotion processing in the future. An important target for research is identification of the earliest emergence of socioeconomic

status (SES)-related differences in the human brain and their implications for postnatal behavior and wellbeing. We obtained functional MRI data in more than 100 normally-developing human fetuses from primarily low SES families and tested whether amygdala whole brain connectivity relates to familial SES. We observed reduced amygdala connectivity to prefrontal cortex, posterior insula, and cerebellum, and increased local connectivity in fetuses of families with the lowest SES. Some of these differences predict childhood abilities, including self-regulation. Future research confirming that system-level brain organization in utero is altered in fetuses of low SES mothers could motivate new lines of research into physiological processes and chemical and/or epigenetic pathways by which maternal resources program the human central nervous system in the womb.

TALK 2: SES, EARLY EXPERIENCE AND BRAIN DEVELOPMENT: INFORMING A SCIENCE OF NEURODEVELOPMENTAL ENHANCEMENT

Joan Luby, Washington University

There is increasing evidence for the effects of early experiences of poverty, adversity and nurturance on childhood brain development, a problem we have studied at the Early Emotional Development Lab at Washington University. These effects are known to be enhanced during sensitive periods when neural architecture is maximally informed by the environment for adaptation to future expected experiences. Evidence for sensitive periods for cognitive enhancement prior to the age of 2 have been inferred in experimental studies in humans and we have shown sensitive periods for maternal support on hippocampal development in longitudinal studies. Our data and others? find regional specificity of experiences of both adversity and nurturance on brain regions associated with children's affective functioning and the timing of exposures show that there is both timing and regional specificity to these effects. These findings along with others from the extant literature, as well as the need for new targeted investigations in developing humans and animal models, will be considered to inform a new science of early childhood neurodevelopmental enhancement. Such a model could be feasibly used in primary care settings to optimize neurodevelopment. This could be done by providing clear guidelines for when it is most important to protect developing children from certain forms of adversity and when it is most important for them to experience enhancement through nurturance and stimulation. The resulting neurodevelopmental enhancement model would be a feasible public health application of findings on adversity, brain development and affective functioning.

TALK 3: EXECUTIVE AND EMOTION REGULATION NETWORKS ASSOCIATED WITH RESILIENCE TO POVERTY AND EARLY ADVERSITY

Robin Nusslock, Northwestern University

Individuals exposed to early-life adversity, including being raised in a family of low socioeconomic status, are vulnerable to emotional and physical problems across the lifespan. However, not everyone exposed to adversity is affected, which raises an important question: what enables some to remain healthy whereas others deteriorate? We first test the hypothesis that heightened activity in the brain's central executive network (CEN), which regulates emotions and limbic reactivity, might reflect a neurobiological marker of resilience. We enrolled 218 urban youth and characterized their exposure to neighborhood violence. Cardiometabolic health and resting state functional connectivity (rsFC) were assessed. As expected, higher neighborhood violence was associated with greater cardiometabolic problems, but only among individuals who displayed lower rsFC in the CEN. We next examined whether receiving supportive parenting during adolescence helps strengthen connectivity in the CEN and an emotion regulation network (ERN) while growing up in poverty. In a sample of African Americans (N = 119) living in the rural South, poverty status and receipt of supportive parenting were assessed during adolescence and rsFC was assessed using fMRI at age 25. As predicted, more years spent living in poverty presaged less CEN and ERN rsFC among young adults who received low levels of supportive parenting, but not among those who received high levels of such parenting. Collectively this suggests that heightened central executive and emotion regulation tendencies may help protect individuals from the consequences of early-life adversity and that supportive parenting can help foster these tendencies in the face of such adversity.

TALK 4: SOCIOECONOMIC DISADVANTAGE AND THE NEUROSCIENCE OF MOTHER-INFANT ATTACHMENT

Pilyoung Kim, University of Denver

Socioeconomic disadvantage such as poverty can increase distress levels, which may make low-income mothers more vulnerable to difficulties in the transition to parenthood. Cumulative risk ? exposure to multiple stressors ? is one of the main environmental mechanisms by which socioeconomic disadvantage is associated with negative brain and psychological functioning. Cumulative risk has also been linked to negative postpartum outcomes including harsh parenting, which can further influence how socioeconomic disadvantage may be transmitted to the next generation. Thus, the goal of the current study was to investigate whether cumulative risk may disrupt the neural and behavioral development of mother-infant attachment. We examined the association of cumulative risk with the brain response to infant cries and maternal behaviors, in a sociodemographically diverse sample (42% low income) of first-time mothers (N=53). Cumulative risk across socioeconomic (low income, financial stress, food insecurity), physical environment (substandard housing, noise, crowding), and psychosocial (marital dissatisfaction, violence, troubles with social services) domains was associated with reduced brain response to infant cries compared to white noise in several regions including the right insula/inferior frontal gyrus and superior temporal gyrus. Reduced

activation in these regions was further associated with lower maternal sensitivity observed during a mother-infant interaction recorded at a home visit. The findings demonstrate that exposure to multiple stressors that are associated with socioeconomic disadvantage may be associated with reduced brain response to an infant's cry in brain regions that are important for emotional and social information processing, and associated with increased difficulties in developing positive mother-infant relationships.

Symposium Session 3

PRESSING THE PLAY BUTTON: SEQUENTIAL NEURAL REPLAY OF HUMAN MEMORIES

Sunday, March 15, 3:00-5:00 pm, Back Bay C&D

Chair: Eitan Schechtman, Northwestern University

Speakers: Kareem Zaghloul, Marit Petzka, Yunzhe Liu, Leonardo G Cohen

Offline reactivation of memory-related neural patterns is thought to contribute to long-term memory evolution. In rodents, sequential reactivation of neuronal ensembles - conventionally termed 'replay' - has been primarily observed in hippocampal place cells and has been linked to memory consolidation and the planning of future actions. The same replay phenomenon has not yet been observed in humans. Identifying parallel physiological phenomena in humans would be an important advance for understanding neurocognitive mechanisms of memory. Progress towards that goal has recently been achieved using different paradigms and methods, including EEG, MEG, fMRI, and ECoG. This symposium will discuss some of these novel results, all emerging within the past year, that expose several underlying themes, including temporal compression of neural sequences and links to subsequent performance. These demonstrations of replay-like mechanisms in the human brain, taken together, reveal various similarities and differences between human and non-human reactivation. Exploring these avenues could pave the way toward deeper insights into the role of reactivation of sequential neural patterns in memory consolidation, planning, and decision making.

TALK 1: NEURAL MECHANISMS OF HUMAN EPISODIC MEMORY FORMATION ACROSS SPATIAL SCALES

Kareem Zaghloul, National Institute of Neurological Disorders and Stroke, NIH, Bethesda, MD

Episodic memory relies upon our ability to retrieve the memory of individual events that we have experienced at a particular time and place. The hippocampus and structures in the medial temporal lobe (MTL) play a critical role in this process by representing relations between memories and the spatiotemporal context within which they occur. A parallel line of research, however, has demonstrated that successful episodic memory retrieval involves recovering neural representations that were present in the cortex when memories were first experienced. This has led to the hypothesis that the hippocampus

and MTL may promote episodic memory retrieval through a dialogue with the cortex that facilitates the ability to recover these neural representations. Here we explore this hypothesis by examining neural signals directly captured from the human brain across multiple spatial scales as participants perform a verbal episodic memory task. We show that patterns of neural activity at both the larger mesoscopic scale of intracranial EEG (iEEG) electrodes and at the smaller microscale of single units in the temporal lobe cortex are reinstated when memories are successfully retrieved. Moreover, we show that such reinstatement of cortical activity is locked to the occurrence of coordinated oscillatory activity between the temporal lobe cortex and structures in the MTL. Together, these data suggest a mechanistic framework through which neural activity in the MTL can promote memory retrieval by initiating the replay of patterns of neural activity in the cortex.

TALK 2: FORWARD REACTIVATION OF SEQUENTIAL MEMORY TRACES DURING SLEEP

Marit Petzka, School of Psychology and Centre for Human Brain Health, University of Birmingham, UK

Our ability to remember past events relies on the re-emergence of learning patterns during sleep. In humans, previous studies focused on simple paired-associate learning. However, episodic memories tend to contain multiple, sequentially experienced elements. Indeed, animal studies have provided evidence for reactivation of learning sequences (?replay?) and suggest that sequential reactivation occurs in a compressed and forward manner. To date, little is still known about the temporal dynamics of sequential memory reactivation during sleep in humans. Here, we applied targeted memory reactivation (TMR) to cue previously learned sequences of object-face-scene triplets during a post-learning nap using high-density electroencephalography (EEG). Behavioural results confirm that encoding took place sequentially, as the conditional probability to correctly retrieve a face without remembering the following scene was higher than correctly retrieving a scene without remembering the preceding face ($p < .001$). Importantly, memory performance for sequences that were cued during the nap was higher compared to sequences not cued ($p = .014$), establishing that TMR for sequences was successful. To capture sequential reactivation, a multiclass LDA classifier was trained on an independent localizer dataset (visual perception of objects, faces and scenes) during wakefulness and validated on sleep data in response to target cues. During sleep, classifier evidence for the emergence of face representations peaked after 800ms cue onset. Most interestingly, classifier evidence for scene representations peaked 600ms after the evidence for face representations, reflecting the order in which the sequences were encoded. Together, our findings reveal forward replay of previously learned memory traces during sleep.

TALK 3: NEURAL REPLAY IN MODEL-BASED LEARNING

Yunzhe Liu, Wellcome Trust Centre for Neuroimaging, University College London, UK

Humans exhibit remarkably flexible behaviour. Such flexibility is thought possible because the brain builds internal models of the world (i.e., cognitive map). How the brain represents, updates and use the world model to support flexible behaviour remains a central question in neuroscience. I will show evidence suggesting neural sequential replay plays a crucial role in representing, updating and generalizing the world model in humans. By building pattern classifiers of MEG sensor activity for each visual stimulus we detected their sequential reactivation during rest. These sequences recapitulated known features of neural replay in rodents and reflected correctly re-assembled orderings, rather than experienced trajectories. The forward replay of a correctly re-assembled sequence transitioned to that of reverse replay when a sequence was rewarded. We provide further evidence that neural pre-play is a manifestation of abstract structure knowledge. The representation of neural replay is factorized so that a sensory code of object representations was preceded 50 ms by structural code (i.e., sequence position and sequence identity) to allow for fast structural generalization to novel situations. When such a replay mechanism goes awry, it explains key cognitive deficits in psychiatric disorder, like Schizophrenia. I will also show evidence that neural sequential replay supports episodic memory retrieval, model-based planning and decision-making at the trial-by-trial basis. The direction of sequential replay can be flexibly adjusted to suit the current task goal. Together, the evidence suggests a crucial role of sequential replay underlying human cognition.

TALK 4: REPLAY OF HUMAN PRACTICE PREDICTS EARLY SKILL LEARNING

Leonardo G Cohen, National Institute of Neurological Disorders and Stroke, NIH, Bethesda, MD

Neural replay, spatiotemporal brain activity associated with task performance during rest, has been reported during sleep and linked to overnight memory consolidation. Wakeful replay contributes to memory formation in rodents (1) but its role in relation to skill formation or even presence in the context of human motor practice is not known. Here, we analyzed data collected in 31 subjects (2) who learned a sequence of keypresses with the non-dominant left hand. Training consisted of 36 alternating practice and rest periods (10 seconds each) lasting a total of 12 minutes. MEG recordings were obtained to assess resting-state and task-induced brain activity dynamics. Support vector machine (SVM) classifiers were constructed for individual key-press events during practice and then used to identify replay of sequence-related MEG dynamics during wakeful rest periods (3). Replay was assessed over sixteen different timescales (25-2500ms) pertaining to biologically relevant replay durations (4). Replay events were observed as early as the first rest period, remained present over the 36 rest periods and for at least 5-minutes after the end of practice. Optimal replay duration was 50-100ms, with a majority of subjects

showing peak replay rates at 75ms durations. Replay of the trained sequence during rest periods prior to performance asymptote predicted rapid offline consolidation of the new skill. Source analysis identified a distributed medial temporal and sensorimotor network underlying wakeful neural replay. We conclude that motor practice elicits sustained neural replay during wakeful rest intervals that predict early skill learning.

Symposium Session 4

FROM WIKIPEDIA SEARCHES TO SINGLE CELL RECORDING: UNCOVERING THE MECHANISMS OF INFORMATION-SEEKING

Sunday, March 15, 3:00-5:00 pm, Grand Ballroom

Chair: Tali Sharot, University College London

Speakers: Eric Schulz, Danielle Basset, Ethan Bromberg-Martin, Irene Cogliati Dezza

People spend a substantial amount of time seeking out information (e.g., asking questions, reading, internet browsing). The human pursuit of knowledge drives intellectual development, is integral to social interactions, crucial for learning and decision-making. An important research challenge is understanding how people decide what they want to know. As massive amounts of information are becoming available to people this challenge is more pertinent today than ever. Despite the central role of information-seeking to human behavior research on information-seeking has been surprisingly limited in comparison to other domains of human cognition and behavior, but has been experiencing revitalization in recent years. This symposium will showcase some of the most recent discoveries in this domain. The presented studies aim to uncover the computational rules and neural mechanisms that support information-seeking as well as individual differences in information-seeking strategies and the relationship between these strategies and mental health. The symposium brings together speakers from different disciplines including psychology, neuroscience and computer science, to provide new insight into information-seeking and its neural basis. Eric Schulz will characterize human strategies for information-seeking in complex environments; Danielle Bassett will present a study looking at people's Wikipedia searches that reveals how people create knowledge networks; Ethan Bromberg-Martin will present evidence for a neural network mechanism of information-seeking; Irene Cogliati Dezza will present evidence for information-seeking alterations in psychopathology; Tali Sharot will conclude by presenting a theory of the motives that drive information-seeking and describe potential applications of this work for assessing mental health.

TALK 1: USING STRUCTURE TO EXPLORE EFFICIENTLY

Eric Schulz, Harvard University

Many types of intelligent behavior can be framed as a search problem, where an individual must explore a vast set of possible actions, while

carefully balancing the exploration-exploitation dilemma. Under finite search horizons, optimal solutions are normally unobtainable, yet humans and other animals regularly manage to solve these problems gracefully. How do they accomplish this? We propose that two simple principles can explain this: generalization over features and uncertainty-guided exploration. Together these form a model that learns from past observations to generalize to similar options and seeks out uncertainty eagerly in order to gain more information about the search space. This model can be used to predict participant's search behavior in a complex multi-armed bandit task. Its parameter estimates can also be used to gain meaningful insights into developmental differences in generalization and directed exploration. Furthermore, we can use this model to describe customers' purchasing decisions in large-scale data set (1.6 million orders) online food delivery website. Finally, I will end by describing ongoing work that puts this model to a test in a multi-armed bandit task with rats, in which we find similar principles influencing animals' motor variability.

TALK 2: HUNTERS, BUSYBODIES, AND THE KNOWLEDGE NETWORK BUILDING ASSOCIATED WITH CURIOSITY

Danielle Basset, University of Pennsylvania

The information gained when practicing curiosity promotes well-being over extended timescales. The open-ended and internally driven nature of curiosity, however, makes characterizing the diverse styles of information seeking that accompany it a daunting endeavor. A recently developed historicophilosophical taxonomy of curious practice distinguishes between the collection of disparate, loosely connected pieces of information and the seeking of related, tightly connected pieces of information. With this taxonomy, we use a novel knowledge network building framework of curiosity to capture styles of curious information seeking in 149 participants as they explore Wikipedia for over 5 hours spanning 21 days. We create knowledge networks in which nodes consist of distinct concepts (unique Wikipedia pages) and edges represent the similarity between the content of Wikipedia pages. We quantify the tightness of each participants' knowledge networks using graph theoretical indices and use a generative model of network growth to explore mechanisms underlying the observed information seeking. We find that participants create knowledge networks with small-world and modular structure. Deprivation sensitivity, the tendency to seek information that eliminates knowledge gaps, is associated with the creation of relatively tight networks and a relatively greater tendency to return to previously-visited concepts. We further show that there is substantial within-person variability in knowledge network building over time and that building looser networks than usual is linked with higher than usual sensation seeking. With this framework in hand, future research can quantify the information collected during curious practice and examine its association with well-being.

TALK 3: A NEURAL NETWORK FOR INFORMATION SEEKING**Ethan Bromberg-Martin, Washington University**

Do you want to know what your future holds? Humans and animals often express a strong desire to seek information about the properties of uncertain future rewards, even when there is no way for them to use this information to influence the outcome. However, little is known about the neuronal mechanisms that sustain information seeking. In particular, how does the brain anticipate opportunities to gain information and generate the motivation to pursue them? I will present evidence that these cognitive and motivational processes are served by a novel population of information-anticipatory neurons in an anatomically connected network including the anterior cingulate cortex, dorsal striatum and ventral pallidum. We trained monkeys to perform tasks which yield probabilistic juice rewards and which offer opportunities to gaze at visual cues: either informative cues that perfectly predict future reward outcomes or non-informative cues that do not predict future outcomes. We found that a substantial proportion of neurons in the network have strong and selective information-anticipatory activity: ramping activity that anticipates the moment the animal expects to gain information to resolve uncertainty about future rewards. Moment-to-moment fluctuations in their activity predict the animal's future information-anticipatory gaze shifts, and pharmacological perturbation of the basal ganglia nuclei that contain these neurons causally interferes with information seeking. Our results demonstrate a cortico-basal ganglia pathway for seeking information about future events, in parallel with the well-known pathways for seeking primary rewards like food and water. I will discuss the implications for theories of motivation, learning, and decision making.

TALK 4: INFORMATION-SEEKING IMPAIRMENTS IN BEHAVIORAL ADDICTION AS A NOVELTY FAILURE**Irene Cogliati Dezza, University College London**

Information-seeking is an important aspect of human cognition that supports healthy functioning of decision-making and goal-directed processing. Despite its adaptive and ubiquitous role in human daily activities, we have rather limited understanding on the mechanisms subtending information-seeking in both healthy individuals and in psychopathologies. Here, we sought to formalize the computational basis of healthy information-seeking, as well as how those components could be compromised in behavioral addiction. We investigate and model human behavior using a novel variant of a classical decision-making task and a novel computational model. This approach allows us to dissociate the relative contributions of information and reward on decision-making, as well as the influence of novelty and general uncertainty. Overall, we found that healthy subjects were motivated by both information gain and reward gain in their choices. In contrast, problem gamblers showed a decreased reliance on information gain as a consequence of a failure in representing novelty. This finding both sheds light on the computational mechanisms underlying healthy human choice

behavior, and how they go awry in an addictive population without the confound of illicit substance consumption. Methodologically, this work offers promising novel experimental and computational approaches to study the mechanisms underlying reward-based learning and decision-making in both healthy and pathological populations.

Symposium Session 5**DEVELOPMENT AND PLASTICITY OF HIGH-LEVEL VISION AND COGNITION**

Monday, March 16, 10:00 am - Noon, Constitution Ballroom

Chair: Zeynep Saygin, The Ohio State University**Speakers: Daniel Dilks, Rhodri Cusack, Zeynep Saygin, Marina Bedny**

What determines the development and plasticity of cortical specialization? Recent evidence points to connectivity as the general mechanism that underlies this specialization. Daniel Dilks introduces evidence of adult-like functional connectivity of face and place networks in infants. Face networks show biases in connectivity with foveal primary visual cortex (V1) while place networks show connectivity with peripheral V1. Rhodri Cusack also finds evidence of adult-like structural connectivity of face and place networks in infants but further shows that tool networks are not adultlike and undergo prolonged maturation until 9 months of age. Zeynep Saygin shows that another highly experience-dependent visual region, the visual word form area (VWFA), already shows privileged functional connectivity with language areas at birth. These three studies suggest a connectivity-based mechanism to earmark functional specialization as well as a role for experience in further shaping connectivity and specialization. Marina Bedny directly explores the plasticity that occurs with experience and finds that congenitally blind individuals have distinct regions within 'visual' cortex that are selective to higher-cognitive domains. Remarkably, these regions show preferential functional connectivity with prefrontal areas that have analogous task-based responses, suggesting that connectivity constrains functional specialization even in cases of large-scale reorganization due to atypical experience. Together, these presentations suggest that early-developing or innate connectivity provides a scaffold for functional specialization of cortex, and constrains how experience may shape this functional specialization.

TALK 1: CONNECTIVITY AT THE ORIGINS OF DOMAIN SPECIFICITY IN THE CORTICAL FACE AND PLACE NETWORKS**Daniel D. Dilks, Emory University**

It is well established that the adult brain contains a mosaic of domain-specific networks. But how do these domain-specific networks develop? Here we tested the hypothesis that the brain comes prewired with connections that guide the development of particular domain-specific networks. Using resting-state fMRI in the youngest sample of newborn humans tested to date, we found that cortical networks that will later develop strong face selectivity (including the proto occipital

face area and fusiform face area) and scene selectivity (including the proto parahippocampal place area and retrosplenial complex) by adulthood, already show adult-like patterns of functional connectivity in as little as 27 days of age. We further asked why these networks always develop selectivity for faces and scenes, respectively, and not for other domains (e.g., scene selectivity in regions that are typically face selective, and vice versa), and found that the proto face and scene networks show differential functional connectivity to primary visual cortex (V1), with face regions biased toward foveal V1, and scene regions biased toward peripheral V1. Given that faces are almost always experienced at the fovea, while scenes always extend across the entire periphery, these distinct inputs may place powerful constraints on the function that each system will ultimately take on. Taken together, these results strongly support the hypothesis that innate connectivity shapes the development of the cortical face and scene processing networks, providing novel evidence for what may be a general mechanism of the origins of domain-specific networks.

TALK 2: CATEGORY-SELECTIVE VISUAL REGIONS HAVE DISTINCTIVE SIGNATURES OF STRUCTURAL CONNECTIVITY IN INFANTS

Rhodri Cusack, Trinity College Dublin

By four months, infants can form categories of similar-looking objects, but it is unclear when they begin to make the rich cross-modal, motoric and affective associations that are characteristic of adult visual categories. These associations are thought to be encoded by long-range brain connectivity and are reflected in the distinctive signature of connectivity of each category-selective region in the ventral visual stream. Category-selective ventral visual regions are already functioning in young infants, but their long-range connectivity has not been investigated. Therefore, we used MRI diffusion tractography to characterize the connectivity of face, place and tool regions in 1-9 month infants. Using a linear discriminant classifier, we found that the face and place regions had adult-like connectivity throughout infancy, but the tool-network underwent significant maturation until 9 months. This suggests that the face and place regions have long-range connectivity that is either innately specified or learned in the first months of infancy, while the more protracted development of the tool network is consistent with it developing as motor function develops, and infants learn to reach. This emerging long-range connectivity could reflect young infants developing category-specific rich associations.

TALK 3: SELECTIVITY DRIVEN BY CONNECTIVITY: INNATE CONNECTIVITY PATTERNS OF THE VISUAL WORD FORM AREA

Zeynep M. Saygin, The Ohio State University

The human brain is a patchwork of different functionally specialized areas. What determines this functional organization of cortex? One hypothesis is that innate connectivity patterns shape functional organization by setting up a scaffold upon which functional

specialization can later take place. We tested this hypothesis here by asking whether the visual word form area (VWFA), an experience-driven region that only becomes selective to visual words after gaining literacy, was already connected to protolanguage networks in neonates scanned within one week of birth. We found that neonates showed adult-like functional connectivity, and observed that i) the VWFA connected more strongly with frontal and temporal language regions than regions adjacent to these language regions (e.g., frontal attentional demand, temporal auditory regions), and ii) language regions connected more strongly with the putative VWFA than other adjacent ventral visual regions that also show foveal bias (e.g. fusiform face area, FFA). Object regions showed similar connectivity with language areas as the VWFA but not with face areas in neonates, arguing against prior hypotheses that the region that becomes the VWFA starts out with a selectivity for faces. These data suggest that the location of the VWFA is earmarked at birth due to its connectivity with the language network, providing novel evidence that innate connectivity instructs the later refinement of cortex.

TALK 4: CONGENITAL BLINDNESS REPURPOSES VISUAL CORTICES FOR HIGHER-COGNITION AND CHANGES THEIR CONNECTIVITY

Marina Bedny, Johns Hopkins University

A growing body of evidence suggests that intrinsic connectivity patterns constrain the functional specialization of cortex. Are these constraints compatible with large-scale functional change as a result of experience? We tested the hypothesis that in blindness different parts of visual cortex are incorporated into distinct higher-cognitive networks using task-based and resting-state data. Congenitally blind (N=23), adult-onset blind (N=10) and blindfolded sighted controls (N=18) took part in three higher-cognitive tasks that activate different fronto-parietal networks. Each task had multiple difficulty levels: 1) auditory sentence processing (grammatically complex vs. simpler sentences) 2) solving math equations of varying difficulty and 3) non-verbal executive go/no-go task (frequent go, infrequent go, no-go). In congenitally blind individuals, different networks within visual cortex preferentially responded to linguistic, numerical and non-verbal go/no-go tasks and showed task-specific sensitivity to cognitive load. Responses were larger in congenitally blind than in sighted and adult-onset blind participants. Congenital blindness was also associated with functional connectivity changes: all occipital networks tested showed reduced resting-state correlations with sensorimotor and auditory areas and enhanced correlations with prefrontal cortices. Furthermore, each occipital network showed preferential enhancements with prefrontal areas that have analogous task-based responses (i.e. language-responsive visual areas showed preferential correlations with language-responsive prefrontal areas). Blindness enables visual cortices to develop selective higher-cognitive responses and changes resting-state connectivity. These findings suggest that intrinsic connectivity constraints are compatible with dramatic functional change as a result of experience.

Symposium Session 6

MOVING FROM A DEFICIT-ORIENTED TO A PREVENTIVE MODEL IN EDUCATION: EXAMINING NEURAL CORRELATES FOR READING DEVELOPMENT

Monday, March 16, 10:00 am - Noon, Back Bay A&B

Chair: Tzipi Horowitz-Kraus, Cincinnati Children's Hospital

Speakers: Tzipi Kraus, Nadine Gaab, Heikki Lyytinen, Michael Skeide, Jolijn Vanderauwera

Reading is a cultural invention and needs to be explicitly taught. Learning to read leads to high-level plasticity in a number of neural circuits, including vision, language and executive functions which makes it a great model to study experience-dependent plasticity in the developing brain. However, 3-10% of children struggle with reading acquisition, which continues into adulthood and poses future academic, socio-economic and mental health challenges in life. The etiology of reading difficulty is thought to lie within the dynamic interplay of genetic risk factors and environmental as well as cultural influences. In this symposium we will discuss the developmental trajectories and corresponding structural and functional neural circuits of learning to read starting at the pre-reading stage. Functional and structural MRI, Diffusion tensor imaging and EEG data obtained from English, German, Finnish, Hebrew and Dutch speaking children will be presented to provide a wide overview of the various factors influencing typical and atypical reading development in children worldwide. Furthermore, we will provide an overview about genetic and environmental factors that can influence experience-dependent plasticity during the process of learning to read. This includes a discussion of familial risk and its role in a multi-risk model as well as the role of home literacy environment and screen exposure time over the time course of learning to read. Similarities and differences across languages and orthographies as well as between a variety of different neuroimaging modalities will be discussed.

TALK 1: NEUROBIOLOGICAL CORRELATES FOR ENVIRONMENTAL FACTORS CONTRIBUTING TO FUTURE READING ABILITIES

Tzipi Horowitz-Kraus The Educational Neuroimaging Center, Faculty of Education in Sciences and Technology and Jolijn Vanderauwera, Université catholique de Louvain, Belgium, Harvard Medical School, USA; KU Leuven, Leuven, Belgium

Environment has a major contribution to children's reading abilities. Home literacy environment and joint storytelling may be helpful for future reading abilities. On the other hand, screen exposure time may minimize the time children spend reading. Neuroimaging studies have demonstrated the involvement of executive functions, visual processing and language networks, all support future reading abilities, in young children listening to stories. However the same networks may be engaged during screen exposure as well. In a series of studies, we

examined the neurobiological correlates for home literacy environment and of screen exposure, focusing on executive functions, language and visual processing in young children. The relationship between home literacy vs screen exposures with the activation and connectivity of neural circuits supporting these networks in preschoolers and school-age children was examined using functional MRI and EEG. Results demonstrate the recruitment of visual processing and executive functions networks, as well as white matter tracts related to these abilities both crucial for reading, in preschoolers and school-age children during a resting-state and task conditions with increased screen time. Similar regions were positively correlated with increased home reading environment. We conclude that screen exposure competes with neural circuits originally used for reading and narrative comprehension and therefore, exposure to screens should be monitored carefully. We also suggest that children exposed less to home literacy environment and to increased screen time may eventually have a reduced reading ability.

TALK 2: THE TYPICAL AND ATYPICAL READING BRAIN: HOW A NEUROBIOLOGICAL FRAMEWORK OF READING DEVELOPMENT CAN INFORM EDUCATIONAL PRACTICE AND POLICY

Nadine Gaab, Harvard Medical School, Boston USA

Various developmental disorders are diagnosed in early childhood, but divergent trajectories of brain development may already be present in preschool, at birth or prenatally. Here we will present results from our longitudinal studies which investigate whether observed functional and structural brain differences associated with reading impairments and developmental dyslexia are already present in infants and preschoolers, how they develop over time, and which aspects of these functional and structural differences are prospectively associated with subsequent language and reading outcome. We will further introduce a multiple deficit model that illustrates reading impairment as an outcome of multiple risks and protective factors interacting within and across genetic, neural, cognitive, and environmental levels from infancy to adolescence. Additionally, we will place a special emphasis on new findings from our longitudinal studies that characterize neural protective and compensatory mechanisms in young children at a heightened risk but who subsequently develop typical language and reading skills. Understanding the early developmental trajectories of language and reading skills, behaviorally and in the brain, will allow for better understanding of the etiological basis of reading impairments and will help inform early screening, identification and remediation practices. Finally, current and potential implications of these findings for contemporary challenges in the field of developmental cognitive neuroscience as well as for education and clinical practice in general, are discussed.

TALK 3: FUNCTIONAL AND STRUCTURAL SIGNATURES OF DYSLLEXIA BEFORE AND AFTER LITERACY INSTRUCTION

Michael Skeide, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

Developmental dyslexia, a severe deficit in literacy learning, is one of the most common neurodevelopmental learning disorders. Yet, it is not well understood whether existing accounts of dyslexia capture potential causes of the deficit or consequences of reduced reading experience. Here, we followed a cohort of 32 children from preliterate to school age using functional and structural magnetic resonance imaging techniques. Based on reading and spelling tests administered at the end of second grade, these children were classified as dyslexics (N=16, age range preliterate age: 5.1-6.4 years, age range school age: 8.0-9.1 years, 5 female, 11 male) and controls (N=16, age range preliterate age: 5.0-6.0 years, age range school age: 7.11-8.11 years, 7 female, 9 male). This longitudinal design allowed us to disentangle potential neural predispositions for developing dyslexia from differences in literacy experience. In our sample, dyslexia reveals itself already at a preliterate age from differences in auditory cortex gyrification ($F(1,24)=9.64$, $p=0.0048$; FWE-corrected; $\hat{\rho}^2=0.19$) and downstream connectivity (resting state functional connectivity: $F(1,24)=14.73$, $P=0.0009$, $\hat{\rho}^2=0.32$; streamline density: $F(1,24)=15.16$, $P=0.003$, $\hat{\rho}^2=0.39$) within the speech processing system. Our results support the notion that dyslexia may be related to subtle early cortical formation defects altering auditory cortex folding and hampering speech processing.

TALK 4: PRECURSORS OF DIFFICULTIES ASSOCIATED WITH THE DEVELOPMENTAL STEPS TOWARDS FULL LITERACY

Heikki Lyytinen, University of Jyväskylä, Finland

The Jyväskylä Longitudinal study of Dyslexia has documented the developmental steps learners have to take to reach full literacy and the bottlenecks which may make it difficult. The first step prepares learner to acquire the basic reading skill. At least in a fully transparent writing environment consistent at grapheme-phoneme level it is easy to understand that a potential bottleneck is the difficulty one may face in differentiating the phonemes from each. To learn the basic reading skill, one had to learn to connect the letter/grapheme representing each of the phonemes. Thus e.g. n, m and l are acoustically so close that differentiation is difficult. Thus, it is not any surprise that it is auditory sensitivity which is needed. Children at familial risk for dyslexia resulting from a parent with dyslexia were observed to have about fifty-fifty likelihood of ending to face dyslexia. Mismatch negativity observed at age 3-5 days of life fails to show up among that half of infants who ended facing dyslexia 10 years later. The next step, learning to comprehend written material, observed on the basis of PISA measures at age 15 was shown up being related to the development of spoken language. Children at familial risk whose expressive and receptive language was late at the age of 2.5 years

ended up facing severe problems in reading comprehension 12 years later.

Symposium Session 7

INTEGRATING THEORY AND DATA: USING COMPUTATIONAL MODELS TO UNDERSTAND NEUROIMAGING DATA

Monday, March 16, 10:00 am - Noon, Back Bay C&D

Chair: Brandon Turner, The Ohio State University

Speakers: Birte Forstmann, Michael Frank, Alison Preston, Brandon Turner

Our understanding of cognition has been advanced by two traditionally non-overlapping and non-interacting groups. Mathematical psychologists rely on behavioral data to evaluate formal models of cognition, whereas cognitive neuroscientists rely on statistical models to understand patterns of neural activity, often without any attempt to make a connection to the mechanism supporting the computation. Both approaches suffer from critical limitations as a direct result of their focus on data at one level of analysis (cf. Marr, 1982), and these limitations have inspired researchers to attempt to combine both neural and behavioral measures in a cross-level integrative fashion. The importance of solving this problem has spawned several entirely new theoretical and statistical frameworks developed by both mathematical psychologists and cognitive neuroscientists. In this symposium, we will highlight a few of these efforts both at a methodological and application level.

TALK 1: CORTICOSTRIATAL COMPUTATIONS IN LEARNING AND DECISION MAKING

Michael Frank, Brown University

The basal ganglia and dopaminergic systems are well studied for their roles in reinforcement learning and reward-based decision making. Much work focuses on 'reward prediction error' (RPE) signals conveyed by dopamine and used for learning. Computational considerations suggest that such signals may be enriched beyond the classical global and scalar RPE computation, to support more structured learning in distinct sub-circuits ('vector RPEs'). Such signals allow an agent to assign credit to the level of action selection most likely responsible for the outcomes, and hence to enhance learning depending on the generative task statistics. I will first describe the computational models spanning levels of analysis from implementation to function. I will then present evidence across species and methods -- from fMRI and EEG in humans to calcium imaging of striatal dopamine terminals in rodents -- that RPE signals are modulated by instrumental task demands, in accordance with vector RPEs.

TALK 2: MUTUAL BENEFITS: COMBINING REINFORCEMENT LEARNING WITH SEQUENTIAL SAMPLING MODELS

Birte U. Forstmann, University of Amsterdam

Reinforcement learning models of error-driven learning and sequential-sampling models of decision making have provided significant insight into the neural basis of a variety of cognitive processes. Until recently, model-based neuroscience research using both frameworks has evolved separately and independently. Recent efforts have illustrated the complementary nature of both modelling traditions and showed how they can be integrated into a unified theoretical framework, explaining trial-by-trial dependencies in choice behavior as well as response time distributions. Here, we expand on this framework. I will outline a theoretical background of such an integration and review current efforts towards this goal. Next, I will show data from ultra-high field functional magnetic resonance imaging testing concrete predictions from this novel framework in the brain. Finally, I will argue that the integration of both modelling traditions provides mutual benefits for both fields, and highlight promises of this approach for cognitive modelling and model-based cognitive neuroscience.

TALK 3: NEUROCOMPUTATIONAL MECHANISMS OF KNOWLEDGE ACQUISITION AND GENERALIZATION

Alison R. Preston, University of Texas at Austin

We acquire knowledge by connecting events that are experienced at different times and places. Prior work has shown that the brain represents the structure of an environment within cognitive maps that support flexible behavior within that environment, such as taking a shortcut to get to a goal location. Real-world adaptive behavior, however, is also supported by recognizing higher-order connections among distinct contexts that have similar internal structures; for example, navigating a new city may be facilitated by inferring that cities generally have downtown, midtown, and uptown areas with distinct properties. We used neurocomputational approaches to examine how the brain forms and uses generalized cognitive maps to support novel decisions. Participants learned object pairs (AB, BC) that were drawn from distinct triads (ABC) which shared the same internal structure. We found that hippocampal and frontoparietal regions formed higher-order cognitive maps wherein hierarchically-aligned representations coded cross-triad relationships with a common geometric structure. Critically, hierarchical cognitive maps were formed despite the lack of explicit reinforcement to do so. Using a combination of neural network simulations and computational modeling of neural data, we further showed that such hierarchically aligned maps provide an efficient representation of both individual events and the common structure across those events. Using these computational approaches, we show that frontoparietal representations promoted efficient inference by coding inferred event relationships with a director vector within the geometric structure that was consistent across triads, speeding inference decisions. These data show how neural representations

extend knowledge beyond direct experience to support generalization through inference.

TALK 4: PROBABILISTIC LINKING FUNCTIONS FOR MIND, BRAIN, AND BEHAVIOR

Brandon M. Turner, The Ohio State University

The link between mind, brain, and behavior has mystified philosophers and scientists for millennia. Scientists who study cognition infer underlying processes either by observing behavior (e.g., response times, percentage correct) or by observing neural activity. These two types of observations have traditionally supported two separate lines of study. The first is led by cognitive modelers, who rely on behavior alone to support their computational theories. The second is led by cognitive neuroimagers, who rely on statistical models to link patterns of neural activity to experimental manipulations, often without any attempt to make a direct connection to an explicit computational theory. Recent progress has been made by forming statistical associations between manifest variables of the brain (e.g., EEG, fMRI) and manifest variables of behavior (e.g., response times, accuracy) through hierarchical latent variable models (Turner et al., 2018). Within this framework, one can make inferences about the mind in a statistically principled way, such that complex patterns of brain-behavior associations drive the inference procedure. In this talk, I will discuss a recent approach called joint modeling that mutually constrains what we learn about the cognitive process from both the computational model and the neurophysiology. The central idea of this approach is to use the information in the neurophysiology to enhance or guide what the cognitive model says about the cognitive process of interest. I will highlight the utility of this approach from a methodological perspective as well as summarize a few key applications.

Symposium Session 8

THE MEETING OF PERCEPTION AND MEMORY IN THE BRAIN

Monday, March 16, 10:00 am - Noon, Grand Ballroom

Chair: Marc Coutanche, University of Pittsburgh

Speakers: Marc Coutanche, Chris Baker, Jennifer Ryan, Morgan Barense

Perception and memory are intrinsically linked. Perceptual processes influence which information enters memory, and existing memories influence how we process perceptual input. This symposium will examine questions that speak to how and where perception and memory meet in the brain. The speakers will each tackle this topic in a unique way, giving an opportunity to identify shared cognitive and neural principles. In the first talk, Marc Coutanche will ask how information at distinct perceptual and conceptual levels can predict encoding success, and how levels of ventral stream reactivation

affect memory outcomes, using behavior, fMRI, and convolutional neural networks. Next, Chris Baker will present fMRI findings that address the different levels of granularity that are elicited in high-level visual cortex during memory encoding and recall, revealing a spatial organization associated with recall. We will then move onto Jennifer Ryan, who will discuss how visual exploration and hippocampal binding processes are inherently linked, drawing on findings from behavioral, neuropsychological, neuroimaging, and computational modeling methods. Finally, Morgan Barense will present behavioral and neuroimaging studies of predictive coding, a continuous bridge between memory and current perceptual input, to ask how prediction errors at naturalistic event boundaries affect episodic memory updating. With overlapping goals but different perspectives, we hope to identify commonalities that can shed light on these issues, while raising new questions.

TALK 1: ROLES OF PERCEPTUAL AND CONCEPTUAL HIERARCHIES IN THE FORMATION OF MEMORIES

Marc Coutanche, University of Pittsburgh

A visual stimulus is represented at multiple levels across the human visual system: from low-level visual properties to high-level meaning. What roles do these levels play in memory formation? I will present results from several recent investigations that address this question. First, I will discuss a study that used convolutional neural networks to identify how early and later stages of the visual hierarchy help predict whether an image will be encoded into memory. Findings from two behavioral and one fMRI experiment suggest images are more likely to be successfully remembered when they are discriminable at early visual levels, but more similar at higher visual levels, where the relevant stage depends on the use of single or multiple semantic categories. Second, I will present findings from an fMRI study of how pattern reactivation of novel concepts relates to memory outcomes. Here, participants were introduced to image word associations for novel rare animals, and were then asked to retrieve the associations one month later, each during an fMRI scan. The results suggest that the degree of reactivation of item and taxonomic-category (e.g., 'mammal') information within different regions of the ventral stream, relates to distinct memory outcomes. Together, these findings suggest that different perceptual and conceptual levels play important and distinct roles in achieving successful memory performance.

TALK 2: DISTINCT PROFILES OF PERCEPTION AND MEMORY IN HIGH-LEVEL VISUAL CORTEX

Chris Baker, National Institute of Mental Health

High-level visual cortex has been characterized by the presence of category-selective regions that respond preferentially to certain classes of stimuli (e.g. scenes, faces, objects). During memory recall, these regions are commonly thought to exhibit similar responses to those observed during perception, although these studies often focus on limited stimulus properties. In an item-based fMRI recall task, we

investigated the nature of representations elicited during encoding and memory recall in category-selective regions by decoding multiple levels of information. Stimuli were trial unique and ranged in granularity from broad stimulus class (scenes, objects) to types of objects or scenes (e.g. natural, manmade) to individual sub-categories (e.g. living room, cupcake). While we find that the patterns of response in object and scene-selective cortex do contain information about recalled items that resembles that during encoding, this information tends to be quite coarse allowing decoding of stimulus class (objects versus scenes) but not other stimulus dimensions that are detectable during encoding. Further, we observed segregation within category-selective cortex between those voxels showing strongest effects during encoding and those during recall. Finally, in a whole-brain analysis, we observed the strongest similarity between encoding and recall in regions anterior to the category-selective cortex. These results highlight key differences in representational structure and spatial distribution between encoding and recall. More generally, these results are consistent with our prior work suggesting systematic relationships between regions engaged during perception and those engaged during recall throughout high-level visual cortex.

TALK 3: THE RECIPROCAL LINK BETWEEN MEMORY AND VISUAL EXPLORATION

Jennifer Ryan, Rotman Research Institute, Baycrest

The oculomotor and hippocampal memory systems interact in a reciprocal manner, on a moment-to-moment basis. Memory influences ongoing viewing behavior by increasing the efficiency of active vision. Conversely, eye movements serve to accumulate information from the visual world, contributing to the formation or updating of coherent memory representations. Eye movements may also contribute functionally to memory retrieval by reconstructing the rich, vivid, spatiotemporal details from memory. These interactions are mediated by the vast structural and functional links between the two systems. Findings from human and non-human animals, using behavioral, neuropsychological, neuroimaging, and computational modeling methods, will be highlighted to show that visual exploration and hippocampal binding processes are inherently linked, and that such an exploration-binding link is altered with hippocampal dysfunction.

TALK 4: PAST MEETS PRESENT: PREDICTION ERROR DRIVES EPISODIC MEMORY UPDATING

Morgan Barense, University of Toronto

How does the brain link past, present, and future? The concept of predictive coding provides a framework that bridges memory and perception. We draw on past experience to make predictions, and then compare those predictions to present perceptual input. This comparison process allows the brain to segment continuous experience, learn from error, and adaptively integrate new information into memory. Converging evidence from animals and humans has implicated prediction error, or surprise, as a key mechanism that

renders established memories malleable. We developed a naturalistic paradigm to elicit prediction error during memory reactivation. To create surprising event boundaries, we interrupted narrative videos immediately before the expected conclusion. Through a series of behavioral and neuroimaging studies, we demonstrated that prediction errors at event boundaries allow episodic memories to be destabilized and updated with new, semantically relevant information. The effect of prediction error on memory was critically time-dependent, consistent with reconsolidation theory. Using fMRI, we showed that trial-wise neural activity in the hippocampus, ventral tegmental area, and angular gyrus was related to prediction error and memory updating. Our findings support the idea that the brain switches between internal and external modes of information processing. After an event boundary, internally-oriented processing (e.g., pattern completion, replay) strengthens episodic memory. However, surprising or salient perceptual input triggers a switch to externally-oriented processing. After a surprising event boundary, the hippocampus is primed to integrate new details into memory. Broadly, our findings showcase the dynamic interplay between perception and memory, through the overarching framework of predictive coding.

Symposium Session 9

CORTICAL GRADIENTS AND THEIR ROLE IN COGNITION

Tuesday, March 17, 1:30 – 3:30 pm, Constitution Ballroom

Chair: Daniel Margulies, CNRS

Speakers: Boris Bernhardt, Noam Saadon-Grosman, Micah Murray, Jonathan Smallwood

While cortical areas have long been considered the building blocks of cortical processing, an emerging perspective suggests cortical functions are mediated along spatial gradients of organization. Cortical gradients provide a general framework for describing a global hierarchy that spans different processing streams, and establishes a mechanism for the large-scale structure of the cerebral cortex to enable sensory integration and diverse forms of cognition. We will address this topic through talks describing different implications and challenges for a gradient-based model of cortical organization and its role in cognition: How are different features of cortical connectivity and microstructure organized along gradients, and how does their deviation in disease account for atypical function? How do sensory topographies impact on the cortical layout within association cortex? How can we reconcile a global hierarchy of 'primary sensory-motor to higher-order cognitive functions' with the observation of that primary cortical areas also demonstrate multisensory properties? And what is the role of large-scale cortical gradients in enabling the dynamics underlying distinct mental states? The four 25-minute presentations will be followed by a 20-minute moderated discussion and Q&A from the audience.

TALK 1: THE INFLUENCE OF BRAIN STRUCTURE ON TYPICAL AND ATYPICAL BRAIN FUNCTION

Boris Bernhardt, Montreal Neurological Institute, McGill University

Neuroscience has the potential to explain how brain function arises from its underlying structure, and how brain dysfunction emerges from diseases associated with structural abnormalities. My talk will overview new work from the lab that analyzed cortex-wide microstructural coordination in humans, and that derived novel measures of structural wiring and hierarchies via advanced modeling of multimodal MRI data. Leveraging post-mortem histological and transcriptomic techniques, we could furthermore show that these microstructural hierarchies derived from in vivo imaging reflect underlying cytoarchitecture and gene expression patterns. Studying large cohorts of healthy individuals as well as patients with structural brain anomalies, our work furthermore shows that new models of structural wiring can make robust predictions of typical as well as atypical functional connectivity and dynamics. Our results advance our understanding of how microstructural properties produce a hierarchical cortical wiring scheme that governs large-scale functional gradients and signal flow in cortical areas.

TALK 2: CORTICAL SOMATOSENSORY HIERARCHICAL GRADIENTS

Noam Saadon-Grosman, Shahar Arzy, Yonatan Loewenstein, Hebrew University

Multiple body maps in different cortical areas characterize information processing in the cortex. Additionally, electrophysiological studies in non-human primates have demonstrate hierarchical relationship between several somatosensory-responsive regions. However, a large-scale understanding of cortical somatosensory processing directions, analogous to the dorsal and ventral streams in the visual cortex, has been lacking. Therefore, we set out to characterize somatosensory hierarchies in the entire cortical representation. We applied phase-encoded bilateral full-body light touch stimulation under functional MRI. We quantified selectivity, a measure of the specificity of the response to a preferred body-part (the fMRI equivalent of neuronal receptive field), as well as the response's laterality, a measure of the dominance to contralateral response. Incorporating multi-modal cortical parcellation, we defined gross anatomical regions and computed selectivity and laterality along four spatial axes originating from the central sulcus. Our results suggest somatosensory hierarchical gradients that follow three anatomically distinct directions: parietal (from the central sulcus posteriorly in the lateral-parietal lobe), frontal (from the central sulcus anteriorly in the frontal) and medial (inferiorly and anteriorly in the medial wall). We propose that as in the visual domain, these directions are streams of somatosensory information processing.

TALK 3: A MULTISENSORY PERSPECTIVE ON PRIMARY CORTICES

Micah M. Murray, University Hospital Center and University of Lausanne

The turn of the 21st century introduced evidence dramatically changing our conception of functional brain organization and cortical gradients. Anatomic evidence in non-human primates showed that primary cortices were directly (i.e. monosynaptically) interconnected. Some even proposed that the whole neocortex is essentially multisensory in nature. In this talk, I will overview our efforts to provide evidence in humans that primary cortices are indeed fundamentally multisensory and play an active role in multisensory processes and perception. This evidence is provided from a full pallet of human brain imaging, mapping, and stimulation methods. First, there is both convergence and integration occurring within primary visual and auditory cortices at early post-stimulus stages. Second, these processes are behaviourally relevant, can be linked with excitability changes, and impact perceptual outcome. Third and more generally, early-latency multisensory processes extending from primary to lateral-occipital regions play a direct role in recognition memory. Finally, we extend such findings to show how multisensory processes across the lifespan are tethered to global cognition and its breakdown, providing a potential access point for screening and treatment. Together, these data underscore how multisensory research and its applications in basic, clinical, and applied research is changing long-held models of graduated functional brain organization.

TALK 4: NEUROCOGNITIVE HIERARCHIES AS A STATE SPACE FOR ON-GOING THOUGHT

Jonathan Smallwood, University of York

Our experience is not always focused on events in the outside world, we often focus internally on self-generated mental content. Understanding the neural basis of these different patterns of ongoing thought requires understanding how the cortex leverages the constraints imposed by its organisation to produce different neurocognitive states. This talk considers evidence that uses machine learning, experience sampling and neural activity to establish that neurocognitive hierarchies can provide a coordinate space for understanding different modes of neurocognitive operation. In particular, these studies suggest that different types of states can fall at either extreme of a dimension resembling how the brain responds to task demands. These results establish that neural hierarchies provide a flexible coordinate space within which to understand the dynamics of unconstrained thought, and demonstrate neural patterns resembling the brain's response to external task demands, capture important aspects of self-generated experience.

Symposium Session 10

SPECIFICS AND GENERALITIES: BEYOND THE SEMANTIC-EPISODIC DISTINCTION

Tuesday, March 17, 1:30 – 3:30 pm, Back Bay A&B

Chair: Chi Ngo, Max Planck Institute for Human Development
Speakers: Chi Ngo, Dagmar Zeithamova, Alexa Tompar, Sean Polyn

An adaptive memory has to serve both the need to construct generalized knowledge across experiences to optimally guide behaviors in novel situation, and the need to keep individual episodes distinctive to minimize interference. These functions are thought to rely on distinct memory systems. The former underscores an appreciation of the commonalities across overlapping experiences, whereas the latter retains the specificity and distinctiveness of individual episodes. These two memory systems are inextricably intertwined and exert joint influences on behavior. However, generalized knowledge and episodic memory have often been investigated in separate lines of research. The work presented in this symposium will characterize the bidirectional influences between generalized knowledge and memory of specific instances from the neural and behavioral levels of analyses. The presentations will cover a set of central questions: (1) when do generalized knowledge and episodic memory emerge in early development; (2) how neural representations of specific instances and generalized knowledge representations may emerge across learning, and how categorization decisions are supplemented by memory for specific experiences; (3) how the structure of prior knowledge explains the extent of distortions in episodic retrieval; and (4) how categorical structure influences both behavioral performance and neural signals during free recall. Collectively, our symposium will include some of the newest and most exciting work in this line of research by integrating theories drawn from developmental science, cognitive neuroscience, and neurocomputational science, and with methods ranging from behavioral, computational, functional magnetic resonance, and transcranial magnetic stimulation approaches.

TALK 1: GENERALIZED KNOWLEDGE AND EPISODIC MEMORY IN DEVELOPMENT

Chi Ngo, Max Planck Institute for Human Development, Berlin

Young children display prodigious capacities to extract generalized knowledge about the environment and to build strong semantic memory and yet they have difficulty remembering specific events. This observation predicts a developmental lead-lag relation between constructing schematic knowledge and episodic memory. However, past research has primarily studied these processes in isolation and focused on different age windows, creating critical blind spots in our understanding of the relative emergence of generalization and episodic memory. Here, we directly tested the prediction of developmental precedence of generalization over episodic memory. We administered a novel task that allowed for assessing

generalization and episodic memory in children aged 4-8 and young adults with common stimuli and task demands. Participants learned a series of events, some of which shared commonalities with one another (e.g., Tabaluga was seen in different contexts, paired with different musical instruments each time). Generalization was operationalized as the ability to make a novel inference based on the series (e.g., Tabaluga would choose a novel musical instrument over objects from other semantic categories). Episodic memory was operationalized as detailed memories of the individual episodes, probed at different levels context binding, item conceptual and perceptual precision. Although generalization and episodic specificity both improved with age, generalization performance exceeded some aspects of episodic specificity early in life. Crucially, generalization did not depend on memories of individual episodes, suggesting that generalization does not arise from abstraction over episodic memories in early development.

TALK 2: MEMORY SPECIFIC AND CONCEPT GENERALIZATION

Dagmar Zeithamova, University of Oregon

Concept learning and episodic memory have been typically studied in distinct lines of research, assumed to rely on different memory representations and competing memory systems. In contrast, a single system view of concept learning assumes that concept generalization relies on specific representations formed by the episodic memory system and the existence of generalized representations is not necessary. To resolve between these views, we conducted a series of studies using two experimental paradigms that allow for simultaneous tracking of specific and generalized representations in the brain and behavior. One set of studies used binary-dimension stimuli well suited to fitting formal categorization models that assume reliance on specific vs. generalized concept representations respectively. Model predictions derived from behavior were related to brain activation. The results showed both specific and generalized concept representations emerging across learning in distinct loci, both contributing to categorization performance. The second set used face blend stimuli well suited for behaviorally testing both face-specific memory and category generalization. Neural pattern similarity analysis revealed neural representations of specific faces as well as category-level (generalized) representations that emerged across learning. Together, these findings demonstrate the existence of generalized concept representations in brain and behavior, but also reveal how categorization decisions are supplemented by memory for specific exemplars, reconciling competing theories of concept representation.

TALK 3: SEMANTIC KNOWLEDGE DISTORTS EPISODIC MEMORY: BEHAVIORAL AND NEURAL INVESTIGATIONS

Alexa Tompary, University of Pennsylvania

Retrieval is not a veridical recapitulation of past events, but instead an imperfect recombination of event-specific details and other general knowledge. Integrating these sources of information may improve the

signal of a memory, but introduce systematic errors if there are discrepancies between them. However, it remains unclear how the structure of semantic knowledge, like category typicality, biases new episodic memories. We predicted that typical (compared to atypical) category members would be more prone to bias by prior knowledge. In a series of behavioral experiments, participants encoded and retrieved image-location associations. Most members of a category (e.g. birds) were located near each other, but some typical and atypical category members were in random locations. Crucially, we used a continuous retrieval measure of location memory to develop two measures: error, a measure of episodic specificity, and bias towards other category members, a measure of the influence of semantic knowledge. First, location memory was more precise for images that were spatially consistent with their category membership. Second, retrieval of typical category members was more biased towards category neighbors, relative to atypical members. Both effects replicated across multiple experiments and were disrupted when images were not arranged by category. This suggests that episodic retrieval is supported both by event-specific details and prior knowledge, and the structure of this knowledge explains the extent of distortions in memory. An ongoing experiment applying transcranial magnetic stimulation to the left anterior temporal lobe will clarify whether these sources of information are underpinned by distinct neural mechanisms.

TALK 4: NEURAL SIGNATURES OF TIME AND MEANING IN CATEGORIZED FREE RECALL

Sean Polyn, Vanderbilt University

During memory search, generalized semantic knowledge interacts with episodic memories of recent experience. We examine these interactions in the categorized free-recall task. In this task, participants study a series of items drawn from taxonomic categories associated with distinct neural signatures (celebrities, landmarks, and objects), and then recall these items in whatever order they come to mind. These interactions reveal themselves in the behavioral dynamics of the task: Participants produce recall sequences that simultaneously display strong temporal organization (whereby successively produced responses tend to come from nearby list positions) and semantic organization (whereby successively produced responses tend to be meaningfully related). These interactions are also revealed in the task's neural dynamics: Category-specific neural patterns can be tracked during both study and recall periods, and these patterns show integrative effects, whereby information about the category identity of items from the recent past persists in the neural signal. We have developed a neurocognitive modeling framework to explain these neural and behavioral dynamics. The model describes how semantic information can be integrated into a representation of temporal context, and predicts the representational structure of neural activity and the organizational effects observed during recall. We use this framework to infer the representational structure of memories for the

study experience, and the nature of the executive processes guiding search through these memories. Finally, I'll describe recent behavioral and neuroimaging experiments in which we use a distraction task to disrupt temporal and category integration, which has corresponding effects on both recall behavior and task-related neural signals.

Symposium Session 11

DEEP DATA: THE CONTRIBUTION OF CASE STUDIES AND SPECIAL POPULATIONS IN THE ERA OF BIG DATA

Tuesday, March 17, 1:30 – 3:30 pm, Back Bay C&D

Chair: Erez Freud, York University

Speakers: Erez Freud, Ella Striem-Amit, Shayna Rosenbaum, Bradford Z. Mahon

Classic neuropsychological case studies helped found the field of cognitive neuroscience, showing which cognitive faculties can be dissociated from one another, and contributing to the discovery of differentiated processing streams. However, given the benefits of big datasets and large sample sizes for reliability, do case studies and the research of small unique populations still have a role in the future of the field? This symposium highlights patient and population research across action, perception, memory, and language, illustrating the benefits of well-characterized deep individual data to cognitive neuroscience. Talks will challenge the dissociation of action and perception in vision, by inspecting the role of the dorsal stream in object recognition; explore the role of hand motor experience for tool and action representations in individuals born without hands; explore the language pathways using direct electrical stimulation mapping in awake brain surgery; and inspect the role of the hippocampus in pattern separation across modalities and content domains. Across the four content domains that are discussed, causal evidence resulting from case studies and special populations places firm constraints on plausible theoretical distinctions. These allow for the generation of new hypotheses about the brain and mind, which, in turn, can be further examined in large datasets.

TALK 1: THE ROLE OF THE DORSAL PATHWAY IN OBJECT PERCEPTION

Erez Freud, York University

According to the two visual pathways hypothesis, the ventral visual pathway promotes vision-for-perception, while the dorsal pathway promotes vision-for-action. Seminal single-cases neuropsychological investigations supported this functional dissociation. However, accumulating evidence challenges this binary distinction and suggests that regions in the dorsal pathway derive object representations that might play a functional role in object perception. In my talk, I will discuss evidence from psychophysical, kinematic and neuroimaging studies with visual agnosia patients that were aimed to explore the nature of object representations in the dorsal pathway. The results from these studies highlight (a) the plausible role of the dorsal pathway

in object perception, (b) the interplay between shape representations derived by the ventral and the dorsal pathway and (c) the association between the developmental trajectories of vision-for-perception and vision-for-action. Together, these findings are consistent with the view that object perception is not the sole product of ventral pathway computations, but instead relies on a distributed network of regions.

TALK 2: PERCEPTION AND ACTION WITHOUT HANDS

Ella Striem-Amit, Georgetown University

Our hands are at the core of our action system, affecting our representation of both actions and manipulable objects, such as tools. But what role do the hand motor features themselves, or our experience using them, play in these representations? I will present a series of fMRI experiments addressing this question by investigating individuals born without hands, who use their feet to perform everyday actions. These works revealed representations abstracted from the hand-specific features, as well as representations affected by motor knowledge and experience. First, I will present findings showing typical processing for visual hand images and actions, regardless of motor experience. Second, I will present findings showing the effect of the absence of motor use knowledge for some common objects which the dysplasics cannot use, affecting a distributed system integrating different attributes of object knowledge. Third, I will present findings related to action execution, which reveal a gradient between body-part selective regions and effector-invariant regions, allowing exploration of the different levels of abstractness in representing actions. Finally, I will discuss the benefits of the special populations, congenitally deprived of experience in specific manners to address the causal role of experience in shaping our brain and mind, drawing parallels across studies of people born blind, deaf or without hands.

TALK 3: PATTERN SEPARATION FOLLOWING DENTATE GYRUS LESIONS

Shayna Rosenbaum, York University

Healthy older adults and individuals with hippocampal compromise experience a notable decline in episodic memory. These memory problems may be due to difficulties discriminating highly similar inputs belonging to separate, yet overlapping, events into discrete episodes at encoding, a process known as pattern separation. Pattern separation in humans is often estimated behaviourally with visual recognition tests in which participants must select previously studied everyday objects from visually and conceptually similar lures and from dissimilar foils. However, the types of stimuli, domains, processes, and representations it impacts remain unclear. To what extent do presumed deficits in pattern separation extend to modalities other than vision, such as audition? Within vision, is it more evident for one class of stimuli, such as scenes, than another,

such as faces? Is the extent of the deficit affected by prior knowledge? To address these issues, I will present a series of studies involving a unique individual with bilateral lesions to the dentate gyrus, a region of the hippocampus strongly associated with pattern separation. A first set of studies involve tasks requiring discrimination of novel auditory stimuli within memory and perception. I will then describe how categorical perception, which refers to greater differentiation of stimuli at a perceived boundary compared to within boundaries, might relate to pattern separation. Findings from this work illustrate how the study of single cases continue to contribute to hypotheses and theories that may steer the field in new directions.

TALK 4: DIRECT ELECTRICAL STIMULATION MAPPING OF LANGUAGE PATHWAYS DURING AWAKE BRAIN SURGERY

Bradford Z. Mahon, Carnegie Mellon University

An emerging approach for understanding the neural substrates of speech processing emphasizes integrated functional analysis of cortical regions, major white matter pathways, and behavioral consequences of lesions to those structures. Language mapping with direct electrical stimulation in awake neurosurgery patients undergoing removal of brain tumors offers a powerful approach for testing hypotheses about the cortical and subcortical systems critical for language processing. I describe a case series in which the first patient was tested with detailed neuropsychological testing pre- and post-operatively, and the second patient was studied using cortical and subcortical electrical stimulation mapping during awake brain surgery. Both patients had gliomas in the dominant frontal lobe. The first patient experienced a reduction in verbal fluency subsequent to partial resection of the Frontal Aslant Tract, which connects the pre-supplementary motor cortex with the inferior frontal gyrus. Motivated by those findings, we designed a novel test of speech fluency that was administered during the awake portion of the second patient's surgery. We found that electrical stimulation of the Frontal Aslant Tract specifically disrupted speech fluency, leaving lexical access and articulatory processes intact. The findings are interpreted in the context of the hypothesis that the Frontal Aslant Tract mediates the integration of syntagmatic relations among words with positional level planning.

Symposium Session 12

WHAT DETERMINES CATEGORY SELECTIVITY IN THE CORTEX?

Tuesday, March 17, 1:30 – 3:30 pm, Grand Ballroom

Chair: Talia Konkle, Harvard University

Speakers: Michael Arcaro, Marius Peelen, Rebecca Saxe, Hans Op de Beeck

What determines category selectivity in the cortex? Methodological advances are providing new insights into the nature of category representation in the brain and how it emerges in development. For

example, controlled rearing studies in non-human primates are revealing the pivotal role of intensive early experience in category selective responses, and the first human infant neuroimaging experiments are revealing what kind of category selectivity is already present in the first few months of life. At the same time, deep neural network models are providing ways to operationalize hypotheses about the feature tuning along the visual hierarchy. In this symposium, we take on the question of what kind of category-related information is represented along the ventral visual stream, in the context of why it is there and how it comes to be that way. The goals of the symposium are to present a compact view of the range of perspectives on these questions, to discover the points of agreement and tension, and ideally to articulate the directions we can take with our new tools in order to arrive at an accepted explanation of category-selectivity in the cortex.

TALK 1: CORTEX IS CORTEX: UBIQUITOUS PRINCIPLES DRIVE FACE-DOMAIN DEVELOPMENT

Mike Arcaro, University of Pennsylvania

How does the brain develop category-selective tuning? One possibility is that the brain is innately organized into anatomically distinct regions, each processing different biologically important image categories. However, genetic specification of something as particular as an image category seems in tension with known activity-dependent, self-organizing wiring properties of the visual system. I will present an argument that seemingly complex phenomena like category selectivity can be accounted for by such ubiquitous principles of brain organization. We performed functional neuroimaging in non-human primates across development, finding that the newborn visual system already comprises an extensive retinotopic proto-architecture that carries with it a topographic organization for scale and shape. We propose that this architecture emerges early in development as a consequence of molecular cues and self-organizing principles and provides the scaffolding for subsequent experience-dependent specializations throughout the visual system. Throughout development, monkeys preferentially look at faces. This systematic foveation enforces a retinotopic regularity of face experience that, in conjunction with an intrinsic retinotopic architecture, can account for the observation that face-selective domains develop in parts of the proto-architecture representing the central visual field. Visual experience was critical for the development of these domains, as monkeys reared without seeing faces did not develop domains selective for images of faces, but did develop domains for other experienced image categories. Thus, the development of category-selective domains involves the same kind of activity-dependent, self-organizing rules that are widely viewed as sufficient to account for the exquisite organization and complex receptive field properties of primary visual cortex.

TALK 2: CATEGORY-SELECTIVE REGIONS IN VISUAL CORTEX: WHAT ARE THEY FOR?

Marius Peelen, Donders Institute for Brain, Cognition and Behaviour

Visual input supports diverse tasks such as object recognition, action guidance, tool use, spatial navigation, inferring the emotions of other people, and interpreting written text. These tasks each require representations of the outside world that emphasize some high-level dimension(s) of their critical stimuli, while abstracting over other irrelevant dimensions. We argue that the demand for these diverse types of representations is a driving force behind the evolution and development of category selectivity in visual cortex. Focusing on tools, we will present evidence: 1) that category-selective responses are closely aligned with knowledge of what a thing means to the observer; that is, the cognitions and behaviors an object is associated with (e.g., knowing that an object can be used as an effector); 2) that specific visual features, visual input, and even visual experience are not necessary to elicit category-selective responses; and 3) that category-selective regions are structurally and functionally connected to regions in other parts of the brain supporting related tasks more broadly (e.g., the fronto-parietal tool network). We conclude that category-selective regions in visual cortex exist because they provide specialised perceptual input to wider networks that serve diverse behavioral goals, including object recognition, but also tool use, reading, and navigation. What exactly category-selective regions represent about their preferred category can only be fully understood by considering the goals that are achieved by the whole systems to which they contribute.

TALK 3: SOCIAL ORIGINS OF CORTICAL FACE AREAS

Rebecca Saxe, MIT

To what degree is category-selectivity of the ventral visual stream specified at birth, and how much arises from experience? Using functional magnetic resonance imaging in awake human infants (age 2-9 months), we have found that cortical regions responding preferentially to faces, scenes and objects are identifiable, with similar large-scale spatial organization to that of adults. In infants, category preferences appear simultaneously in occipital, temporal, parietal and frontal areas, with no hint of a posterior-to-anterior sequence. Yet the functional responses are less category-selective than in adults. What explains the earliest cortical responses to high-level visual categories? I propose that these responses reflect biased connectivity, both bottom-up and top-down. Connectivity from earlier visual areas could confer sensitivity to the characteristic visual statistics of faces, scenes, and objects; whereas connectivity from parietal and frontal areas enhances responses for category-relevant functions in cognition and action. For example, faces are not just a pattern of foveated, curvy, smooth objects: infants choose to look at faces to engage in positively valenced, contingent social interactions. Using functional Near Infrared Spectroscopy in infants (age 6-12 months), we have found that medial prefrontal cortex is active in response to these cues of

social value, and predicts the infant's subsequent looking to faces. The strongest version of my hypothesis is therefore that activity related to social value during social interactions, plausibly in medial prefrontal cortex and/or subcortical regions, directly guides the development of face-selective responses in occipital and temporal cortex.

TALK 4: FACTORS DETERMINING WHERE CATEGORY-SELECTIVE AREAS EMERGE IN VISUAL CORTEX

Hans Op de Beeck, KU Leuven

A hallmark of functional localization in the human brain is the presence of areas in visual cortex specialized for representing particular categories such as faces and words. Why do these areas appear where they do during development? I will survey and present recent neuroimaging and computational evidence that seems contradictory in the light of simple hypotheses aiming to explain the characteristics and location of emerging category selectivity. Instead, we need to integrate at least three factors to explain the data: (i) pre-existing selectivity for properties of the stimulus, (ii) the computational hierarchy of the visual system, and (iii) domain-specific patterns of connectivity to nonvisual regions. The resulting framework posits that the cortical location of category selectivity is constrained by which category will be represented, how it will be represented, and why the representation will be used.

Exhibits

Exhibitors

Visit our exhibitors in Exhibit Hall C.

ANT North America

Bitbrain

Brain Vision, LLC

Cortech Solutions, Inc

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NIRx Medical Technologies, LLC

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Rogue Research Inc

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UMMS Shriver Center

Exhibit Hours

The conference exhibits are located in Exhibit Hall C. Located in this room are the posters, exhibit booths, and catering. The Exhibit Hall is open to all attendees at the following times:

Saturday, March 14	2:30 pm – 6:00 pm
Sunday, March 15	8:00 am – 5:00 pm
Monday, March 16	8:00 am – 6:00 pm
Tuesday, March 17	8:00 pm – 12:00 pm

Personal Belongings

The Hotel and Convention Center are open to public access. For security purposes, keep your personal belongings secure at all times. Do not leave anything in meeting rooms or the exhibit hall.

GSA/PFA Awards

Congratulations to the 2020 winners of the Graduate Student Awards and the Post-Doctoral Fellow Awards. Each winner receives a monetary stipend to cover conference travel expenses.

Graduate Student Award Winners

Elvisha Dhamala, *Weill Cornell Medicine in New York City*
Benjamin Gibson, *University of New Mexico*
Heather Hansen, *Ohio State University*
Nicholas Judd, *Karolinska Institutet*
Saima Malik-Moraleda, *Harvard University*
Seokyoung Min, *Yonsei University*
Emily Schwartz, *Boston College*
Jordan Wynn, *Rotman Research Institute, University of Toronto*

Post-Doctoral Fellow Award Winners

Trevor Brothers, *Tufts University*
Matthew Moore, *University of Illinois*
Nicole Petersen, *University of California, Los Angeles*
Justin Riddle, *UNC School of Medicine*
Maya Rosen, *Harvard University*
Elizaveta Solomonova, *McGill University*
Carl Stevens, *University of Arkansas*
Jie Zheng, *Harvard University*
Jennifer Zuk, *Harvard University*

Poster Schedule

Poster sessions are scheduled for Saturday-Tuesday in Exhibition Hall C of the Sheraton Boston Hotel. All attendees must present their CNS 2020 name badge to enter the exhibit hall. Do not leave personal items in the poster room. The presenting author must be present during the assigned session. You may post your materials on the board assigned to you at any time after the "Set-up Begins" time (listed below), but before the beginning of the assigned poster session. You must remove your poster promptly no later than the time listed above in "Take-down Complete." Any posters left up after the "Take-down Complete" time may be discarded. Note that presenters are asked to set up poster in advance of their session and to leave their poster up for a period following their session (see your specific session for hours). This is to allow attendees to view posters outside the formal session times. Only registered poster presenters, wearing a CNS 2020 meeting badge, for the current session and exhibitors will be allowed in the exhibit hall during set up and take-down hours. No attendee or exhibitor will be allowed to enter the exhibit hall after the "Closed for the Day- No Entry hours."

Poster Session	Date	Setup Begins	Session Begins	Tear-Down	Take-Down Completed
A	Saturday, March 14	2:30 pm – 3:00 pm	3:00 pm – 5:00 pm	6:00 pm – 6:15 pm	6:15 pm
B	Sunday, March 15	7:30 am – 8:00 am	8:00 am – 10:00 am	Noon – 12:15 pm	12:15 pm
C	Sunday, March 15	12:30 pm – 1:00 pm	1:00 pm – 3:00 pm	5:00 pm – 5:15 pm	5:15 pm
D	Monday, March 16	7:30 am – 8:00 am	8:00 am – 10:00 am	Noon – 12:15 pm	12:15 pm
E	Monday, March 16	12:30 pm – 1:00 pm	2:30 pm – 4:30 pm	6:00 pm – 6:15 pm	6:15 pm
F	Tuesday, March 17	7:30 am – 8:00 am	8:00 am – 10:00 am	11:45 am - Noon	Noon

* Please note that only scheduled registered poster presenters may enter the exhibit hall during the half hour set-up time. **Note:** Please remove your poster promptly at take down complete time, so that the next presenter may set up their poster.

Session A

Saturday, March 14, 3:00–5:00 pm, Exhibit Hall C

A1 Tracking of Continuous Speech in Noisy Auditory Scenes at 7T fMRI

Lars Hausfeld¹, Elia Formisano¹, ¹Maastricht University - Dept. Cognitive Neuroscience

Topic Area: ATTENTION: Auditory

A2 Development of Implicit Location Probability Learning

Saebyul Lee¹, Injae Hong², Su Keun Jeong¹, ¹Korea Brain Research Institute, ²Yonsei University

Topic Area: ATTENTION: Development & aging

A3 Multisensory interactions between emotional faces and voices are enhanced by attending to emotion but not gender

Sarah Izen¹, Vivian Ciaramitaro¹, ¹University of Massachusetts Boston

Topic Area: ATTENTION: Multisensory

A4 Qigong moving meditation impacts attention and sensorimotor function in cancer-related fatigue

Simona Temereanca¹, Chloe Zimmerman^{1,2}, Dylan Daniels¹, Brendan Cullen³, Howard Hughes⁴, Tariq Cannonier¹, Catherine Kerr¹, Stephanie Jones¹, ¹Brown University, ²Warren Alpert Medical School, ³University of Oregon, ⁴Fordham University

Topic Area: ATTENTION: Multisensory

A5 Cortical Attention and Default Mode Networks in Focused Attention Meditators Assessed with fMRI

Kathryn Devaney¹, Emily Levin², Sara Lazar³, David Somers¹, ¹Boston University, ²Brown University, ³Harvard Medical School

Topic Area: ATTENTION: Other

A6 The effects of attention to the contextual integration of objects and scenes

Olga Letichevskaya¹, Talia Brandman², Marius Vincent Peelen³, ¹University of Reading, ²Wizmann Institute of Science, ³Donders Institute for Brain, Cognition and Behaviour

Topic Area: ATTENTION: Other

A7 Modeling the Trial-by-Trial Dynamics of Associative Learning: Alpha Power, Pupil Diameter, and Self-Reported Expectancy

Kierstin Riels¹, Andreas Keil¹, ¹University of Florida

Topic Area: ATTENTION: Other

A8 Multiple Object Tracking: The Perception of Object Ensembles

Reem Alzahabi¹, Matthew Cain¹, ¹Tufts University

Topic: ATTENTION: Other

A9 Complex naturalistic stimuli maintained in working memory capture attention automatically - an ERP study

Michal Bola¹, Natalia Rutkowska¹, Lucja Doradzinska¹, ¹Nencki Institute of Experimental Biology

Topic Area: ATTENTION: Spatial

A10 Investigation of Frequency-Specific Entrainment on Alpha Inhibition on a Single-Trial BasisYen-Hsun Chen¹, Chi-Hung Juan¹, Wei-Kuang Liang¹, ¹National Central University

Topic Area: ATTENTION: Spatial

A11 Anticipatory Biasing of Visuospatial Attention in Deaf AdultsIan DeAndrea-Lazarus¹, Jiayi Xu¹, Maeve Sargeant², Edward Freedman¹, John Foxe¹, ¹University of Rochester School of Medicine & Dentistry, ²Saint Joseph's University

Topic Area: ATTENTION: Spatial

A12 Biparietal transcranial direct current stimulation changes functional connectivity and behavioral performanceKengo Tsujimoto¹, Katsuhiro Mizuno¹, Daisuke Nishida¹, Masatoshi Tahara², Meigen Liu³, ¹National Center of Neurology and Psychiatry Hospital, ²Saiseikai Higashikanagawa Rehabilitation Hospital, ³Keio University School of Medicine

Topic Area: ATTENTION: Spatial

A13 Grasping social development: Right hand use relates to motor, cognitive, and social development in childrenNicole van Rootselaar¹, Jeffrey MacCormack¹, Robbin Gibb¹, Fangfang Li¹, Claudia Gonzalez¹, ¹University of Lethbridge

Topic Area: EMOTION & SOCIAL: Development & aging

A14 Life stress is associated with gray matter thickness in the salience network in female adolescents and early adultsAlyssa Fassett-Carman¹, Harry Smolker², Hannah Snyder¹, Benjamin Hankin³, Marie Banich², ¹Brandeis University, ²University of Colorado Boulder, ³University of Illinois Urbana Champaign

Topic Area: EMOTION & SOCIAL: Emotional responding

A15 Identifying Audiovisual Affective Congruence from Brain Activation PatternsChuanji Gao¹, Christine Weber¹, Douglas Wedell¹, Svetlana Shinkareva¹, ¹University of South Carolina

Topic Area: EMOTION & SOCIAL: Emotional responding

A16 Dynamic resting connectivity of the mesolimbic system is associated with individual differences in reward sensitivitySarah Kark¹, Joren Adams¹, Liv McMillan¹, Michael Yassa¹, ¹University of California, Irvine

Topic Area: EMOTION & SOCIAL: Emotional responding

A17 The effects of insular resection on the cardiac interoception and emotion recognitionYuri Terasawa¹, Kazuya Motomura², Toshihiko Wakabayashi², Satoshi Umeda¹, ¹Keio University, ²Nagoya University

Topic Area: EMOTION & SOCIAL: Emotional responding

A18 Art as creative inspirationEdward Vessel¹, Dominik Welke¹, Isaac Purton², ¹Max Planck Institute for Empirical Aesthetics, ²New York University

Topic Area: EMOTION & SOCIAL: Emotional responding

A19 Preparing for the Worst: Evidence that Older Adults Proactively Downregulate Negative AffectBrittany Corbett¹, Natasha Rajah², Audrey Duarte¹, ¹Georgia Institute of Technology, ²McGill University

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

A20 Impact of maternal trauma history on child cognitive performance at 5 years by child internalizing symptoms at 3.5 yearMolly Cunningham¹, Abigail Bosse¹, Carter R. Petty¹, Rosalind J. Wright², Michelle Bosquet Enlow¹, ¹Boston Children's Hospital, ²Mount Sinai Hospital

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

A21 Social reward-threat conflict influences amygdala activation underlying automatic actions in social avoidanceTravis Evans¹, Jennifer Britton², ¹VA Boston Healthcare System, ²University of Miami

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

A22 Tendency to Ruminates Predicts Higher Alpha Power During Resting StateNicole Forner¹, ¹University of New Hampshire

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

A23 Effects of Individual Differences in Disgust Sensitivity on Responses to Taboo SpeechAlexandra Kelly¹, Maurice Flurie², Bonnie Zuckerman², Jamie Reilly², ¹Drexel University, ²Temple University

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

A24 Efficacy of Consumer-Based EEG Devices for Conducting Future ResearchClaire Simmons¹, Shenyang Huang¹, William Krenzer¹, Nita Farahany¹, ¹Duke University

Topic Area: EMOTION & SOCIAL: Other

A25 Neural representation of social craving following isolation in the human brainLivia Tomova¹, Kim Wang¹, Kay Tye², Rebecca Saxe¹, ¹Massachusetts Institute of Technology, ²Salk Institute

Topic Area: EMOTION & SOCIAL: Other

A26 Tell me the truth: the effect of feedback reliability in praise words on neural activation in reward systemShotaro Fujiwara¹, Ryo Ishibashi¹, Azumi Tanabe-Ishibashi¹, Ryuta Kawashima¹, Motoaki Sugiura¹, ¹Tohoku University

Topic Area: EMOTION & SOCIAL: Person perception

A27 The Difference in Behavioral and ERP Responses to Static and Dynamic Facial Expression Portraying ThreatMegan Marshall¹, Harlan Fichtenholtz¹, ¹Keene State College

Topic Area: EMOTION & SOCIAL: Person perception

A28 Neural differences in the theory of mind network during socially awkward events in schizophreniaEmily Przsinda¹, Emily Dudek¹, Bridget Shovestul¹, Abhishek Saxena¹, J. Steven Lambert¹, David Dodell-feder¹, ¹University of Rochester

Topic Area: EMOTION & SOCIAL: Person perception

A29 Seeing humanness in older peopleToshiki Saito¹, Rui Nouchi¹, Ryo Ishibashi¹, Kosuke Motoki², Yutaka Matsuzaki¹, Akiko Kobayashi¹, Motoaki Sugiura¹, Ryuta Kawashima¹, ¹Tohoku University, ²Miyagi University

Topic Area: EMOTION & SOCIAL: Person perception

A30 Are Two Activities Better Than One? Effects of Music Training and Physical Activity on Cognitive DevelopmentYaen Chen¹, Lauren Raine¹, Arthur Kramer¹, Charles Hillman¹, Psyche Loui¹, ¹Northeastern University

Topic Area: EXECUTIVE PROCESSES: Development & aging

A31 Amount of daily sleep moderates the relationship between family SES and children's inhibitory control skills

Srishiti Nayak¹, Amanda Tarullo², ¹Princeton University, ²Boston University
Topic Area: EXECUTIVE PROCESSES: Development & aging

A32 Individual differences in GABA modulate brain activation during cognitive control differently in teen males and females

Louisa Smith¹, Harry Smolker¹, Hilary Traut¹, Rebecca Helmuth¹, Boman Groff¹, Mark Brown^{1,2}, Hannah Snyder³, Benjamin Hankin⁴, Marie Banich¹, ¹CU Boulder, ²Anschutz Medical Campus, ³Brandeis University, ⁴University of Illinois Urbana-Champaign
Topic Area: EXECUTIVE PROCESSES: Development & aging

A33 Criterion shift association of Electroencephalography, in a recognition memory security patrol paradigm.

Christina Boardman¹, Evan Layher¹, Jean Vettel², Michael Miller¹, ¹University of California Santa Barbara, ²Army Research Laboratory
Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

A34 Multiple-demands & cognitive control: activation during task-switching is not specific to anterior prefrontal cortex.

Richard Daws¹, Yuqi Li¹, Eyal Soreq¹, John Duncan², Stefano Sandrone¹, Adam Hampshire¹, ¹Imperial College London, ²Cambridge University
Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

A35 tDCS Increases Cognitive Flexibility by Decreasing Task Set Inertia

Peyton Taylor¹, Joseph Orr¹, Michael Imburgio¹, ¹Texas A&M University
Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

A36 Learning more when attending less: Poor attentional states enhance peripheral learning

Michael Dubois¹, Alexandra Decker¹, Katherine Duncan¹, Amy Finn¹, ¹University of Toronto
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

A37 Network Coupling & Task Performance

Derek M. Smith¹, Thackery I. Brown², Eric H. Schumacher², ¹Northwestern University, ²Georgia Institute of Technology
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

A38 IDENTIFYING THE COGNITIVE UNDERPINNINGS OF VOICE-HEARING BY COMPARING NEVER, PAST AND CURRENT VOICE-HEARERS

Wei Lin Toh¹, Eric Tan¹, Erica Neill², Tamsyn Van Rheen², Caroline Gurvich³, Philip Sumner¹, Sean Carruthers¹, Elizabeth Thomas⁴, Susan Rossell¹, ¹Swinburne University of Technology, ²University of Melbourne, ³Monash Alfred Psychiatry Research Centre, ⁴Monash University
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

A39 Artificial neural networks reveal multivariate integration of information from multiple category-selective regions

Mengting Fang¹, Aidan Aglinskis¹, Yichen Li², Stefano Anzellotti¹, ¹Boston College, ²New York University
Topic Area: EXECUTIVE PROCESSES: Other

A40 Decreased engagement of cognitive control networks is associated with greater music and better reading in children

Rola Farah¹, Ola Ozernov-Palchik², John D. E. Gabrieli², Tzpi Horowitz-Kraus³, ¹Educational Neuroimaging Center- Technion, ²Gabrieli Laboratory-Massachusetts Institute of Technology, ³Educational Neuroimaging Center-Technion
Topic Area: EXECUTIVE PROCESSES: Other

A41 Brain plasticity following Organizational Skills Training in elementary school students: A pilot resting-state study

Yuliya Yoncheva¹, Joanna Tabor¹, Elmaghribi Shereen¹, Christina Di Bartolo¹, Greta Conlon¹, Eva Petkova¹, Howard Abikoff¹, Richard Gallagher¹, F X Castellanos¹, ¹NYU Langone Health
Topic Area: EXECUTIVE PROCESSES: Other

A42 Decomposition of EEG reveals a diversity of beta-band responses to a single pulse of TMS

Jacqueline Fulvio¹, Saskia Haegens², Nathan Rose³, Bradley Postle¹, ¹University of Wisconsin – Madison, ²Columbia University, ³University of Notre Dame
Topic Area: EXECUTIVE PROCESSES: Working memory

A43 Prefrontal lesions disrupt oscillatory signatures of feature binding in working memory

Elizabeth Johnson¹, Mohsen Parto Dezfouli², Saeideh Davoudi², Robert Knight¹, Mohammad Reza Daliri², ¹University of California, Berkeley, ²Iran University of Science and Technology
Topic Area: EXECUTIVE PROCESSES: Working memory

A44 Understanding the neurocognitive mechanisms of maintenance and disengagement in a complex working memory task

Malayka Mottarella¹, Chantel Prat¹, ¹University of Washington
Topic Area: EXECUTIVE PROCESSES: Working memory

A45 EEG Correlates of Dynamic Decision Parameters of Input and Output Gating

Rachel Ratz-Lubashevsky¹, Michael Frank¹, ¹Brown University
Topic Area: EXECUTIVE PROCESSES: Working memory

A46 Frontoparietal contributions to visual working memory precision

Ainsley Temudo¹, Kartik Sreenivasan¹, ¹New York University Abu Dhabi
Topic Area: EXECUTIVE PROCESSES: Working memory

A47 Deep learning model of field imaging data provides insight on neurobiology of childhood literacy in rural Ivory Coast

Justus Matteson¹, Jiamian Wang¹, Victoria Bobowska¹, Benjamin Zinszer¹, Kaja Jasinska¹, ¹University of Delaware
Topic Area: LANGUAGE: Development & aging

A48 Functional connectivity at infancy distinguishes familial risk of dyslexia and predicts school-age phonological skills

Xi Yu¹, Ferradal Silvina², Danielle Sliva^{2,4}, Jade Dunstan², Clarisa Carruthers², Joseph Sanfilippo², Jennifer Zuk², Lilla Zöllei⁵, Emma Boyd⁵, Borjan Gagoski², Ellen Grant², Nadine Gaab^{2,6}, ¹Beijing Normal University, ²Boston Children's Hospital, ³Indiana University, ⁴Brown University, ⁵Massachusetts General, ⁶Harvard Medical School
Topic Area: LANGUAGE: Development & aging

A49 Planning nouns and verbs across semantic categories

Miriam Hauptman^{1,2}, Esti Blanco-Elorrieta^{1,2}, Liina Pykkänen^{1,2}, ¹New York University, ²NYUAD Research Institute
Topic Area: LANGUAGE: Lexicon

A50 Left lateral temporal cortex mediates cross-language translation in logographic reading

Kexin Xiong¹, Kouji Takano², Sachiko Kiyama¹, Michiru Makuuchi², Kimihiro Nakamura², ¹Tohoku University, ²National Rehabilitation Center for Persons with Disabilities
Topic Area: LANGUAGE: Lexicon

A51 Transcranial Direct Current Stimulation Influences Reliance on Declarative vs. Procedural Learning

Kinsey Bice¹, Chantel Prat¹, ¹University of Washington
Topic Area: LANGUAGE: Other

A52 An fNIRS Investigation of Fluent and Stuttered Continuous Speech in Adults Who Stutter

Allison Hancock¹, Carla I Orellana¹, Sushma Alphonsa², Tyson Barrett¹, Ron Gillam¹, ¹Utah State University, ²University of Nevada Reno
Topic Area: LANGUAGE: Other

A53 Macro-Linguistic Gestural Facilitation for Narrative Discourse in Aphasia

Ted Jenkins¹, ¹Rhode Island College
Topic Area: LANGUAGE: Other

A54 Distinct Event-Related Potentials Elicited by Incongruent Phonetics, Incorrect Allomorphs, and Incorrect Phonemes

Lisa Sanders¹, Margaret Ugolini¹, Miriam Muñoz¹, Bethany Dickerson¹, Joe Pater¹, ¹University of Massachusetts Amherst
Topic Area: LANGUAGE: Other

A55 Speech pause behavior in traumatic brain injury is driven by comorbid cognitive impairment and task demand

Hayden Ventresca¹, Jordan R. Green¹, Viktoria Pereira Mayer², Daniel de Carvalho², Caroline Mafra², Willingson Silva Paiva², Ana Luiza Zaninotto¹, ¹MGH Institute of Health Professions, ²Faculdade de Medicina da Universidade de Sao Paulo (FM-USP)
Topic Area: LANGUAGE: Other

A56 Simple composition: Towards a magnetoencephalography functional localizer

Graham Flick¹, Liina Pykkänen¹, ¹New York University
Topic Area: LANGUAGE: Semantic

A57 Tracking lexical consolidation of novel word meanings: ERP and time frequency analyses

Yushuang Liu¹, Janet van Hell¹, ¹The Pennsylvania State University
Topic Area: LANGUAGE: Semantic

A58 The neural basis of the negativity bias: Insights from computational models and spatial similarity analysis of EEG

Victoria Sharpe¹, Lin Wang¹, Nathaniel Delaney-Busch¹, Gina Kuperberg^{1,2}, ¹Tufts University, ²Massachusetts General Hospital
Topic Area: LANGUAGE: Semantic

A59 Finding Meaning in Music: N400 Indices of the Semantics of Musical Intervals

Seth Eggleston¹, Courtney Stevens¹, ¹Willamette University
Topic Area: LANGUAGE: Semantic

A60 Native language sounds in new, foreign words boost grammar processing: ERP evidence of transfer in initial acquisition

Sabine Gosselke Berthelsen¹, Merle Horne¹, Yury Shtyrov², Mikael Roll¹, ¹Centre for Languages and Literature, Lund University, ²Center of Functionally Integrative Neuroscience, Aarhus Uni.
Topic Area: LANGUAGE: Syntax

A61 Encoding-retrieval similarity of perceptually related items and their relation to false memories in aging

Jordan Chamberlain¹, Nancy Dennis¹, ¹The Pennsylvania State University
Topic Area: LONG-TERM MEMORY: Development & aging

A62 Resting State Functional MRI in Parkinson Disease: Alterations in Connectivity Based on Cognitive Impairment

Brenda Hanna-Pladdy¹, Li Jiang¹, Rao Gullapalli¹, ¹University of Maryland School of Medicine
Topic Area: LONG-TERM MEMORY: Development & aging

A63 Eye movements reveal age differences in the use of retrieved content during pattern completion

Jordana Wynn¹, Bradley Buchsbaum¹, Jennifer Ryan¹, ¹Rotman Research Institute, University of Toronto
Topic Area: LONG-TERM MEMORY: Development & aging

A64 Resting-state functional connectivity differences in memory networks of autism spectrum disorder

Hayley Clocksin¹, John Scofield¹, David Beversdorf¹, Cory Riecken¹, Shawn Christ¹, Jeffrey Johnson¹, ¹University of Missouri
Topic Area: LONG-TERM MEMORY: Episodic

A65 Progression from feature-specific brain activity to hippocampal binding during episodic encoding

Rose Cooper¹, Maureen Ritchey¹, ¹Boston College
Topic Area: LONG-TERM MEMORY: Episodic

A66 Association between details and spatiotemporal structure in free recall of real-world episodes

Nicholas Diamond¹, Brian Levine², ¹University of Pennsylvania, ²Rotman Research Institute, Baycrest Health Sciences
Topic Area: LONG-TERM MEMORY: Episodic

A67 Parallel Networks Dissociate Episodic and Social Functions Across Distributed Cortical Regions Within Individuals

Lauren DiNicola¹, Rodrigo Braga², Randy Buckner¹, ¹Harvard University, ²Stanford University
Topic Area: LONG-TERM MEMORY: Episodic

A68 Drift diffusion modelling in big data: Lower episodic memory abilities are associated with better reasoning performance

Carina Fan¹, Brian Levine¹, Michael Mack², ¹Rotman Research Institute, ²University of Toronto
Topic Area: LONG-TERM MEMORY: Episodic

A69 fMRI correlates of spoken autobiographical memory retrieval associated with spatial, temporal, and self-referential proc

Charles Ferris¹, Sarah Taha¹, Erin Morrow¹, Cory Inman², Stephan Hamann¹, ¹Emory University, ²UCLA
Topic Area: LONG-TERM MEMORY: Episodic

A70 Distinct patterns of hippocampal activity are associated with spatial memory and color memory

Haley Fritch¹, Preston Thakral², Scott Slotnick¹, Robert Ross³, ¹Boston College, ²Harvard University, ³University of New Hampshire
Topic Area: LONG-TERM MEMORY: Episodic

A71 Gist and detailed mnemonic discrimination of highly similar scenes along the hippocampal longitudinal axis

Nghi (Nick) Hoang^{1,2}, Fahad N. Ahmad², ZhongXu Liu³, Marilyne Ziegler¹, Morris Moscovitch^{1,2}, ¹University of Toronto, ²Rotman Research Institute, ³University of Michigan - Dearborn
Topic Area: LONG-TERM MEMORY: Episodic

A72 Replay of novel spatial routes improves navigation in older adults

Bryan Hong¹, Miranda Chang¹, Shayna Rosenbaum^{2,3}, Morgan Barense^{1,3},
¹University of Toronto, ²York University, ³Rotman Research Institute
 Topic Area: LONG-TERM MEMORY: Episodic

A73 Power naps and episodic memory: Differential benefits of stage 2 sleep and slow wave sleep

Sara Y. Kim¹, Jessica D. Payne¹, ¹University of Notre Dame
 Topic Area: LONG-TERM MEMORY: Episodic

A74 Distributed representations of remembered vs. imagined events

Robert Molitor¹, Alexandra Tremblay-McGaw¹, Sarah DuBrow¹, Brice Kuhl¹,
¹University of Oregon
 Topic Area: LONG-TERM MEMORY: Episodic

A75 Memory of Time: a novel paradigm to assess mnemonic discrimination for event duration

Nathan Muncy¹, Brock Kirwan¹, ¹BYU
 Topic Area: LONG-TERM MEMORY: Episodic

A76 The effect of targeted memory reactivation on generalisation in language learning

Chloe Newbury¹, Rebecca Crowley¹, Kathleen Rastle¹, Jakke Tamminen¹,
¹Royal Holloway University of London
 Topic Area: LONG-TERM MEMORY: Episodic

A77 Does the mnemonic similarity task assess only memory, or is it sensitive to general cognitive function?

Sara Pishdadian¹, Nghi (Nick) Hoang², Stevenson Baker¹, Morris Moscovitch¹,
 R. Shayna Rosenbaum¹, ¹York University, ²University of Toronto
 Topic Area: LONG-TERM MEMORY: Episodic

A78 The autobiographical significance of semantic knowledge in aging

Louis Renoult¹, Rachel Lambert¹, Michael Hornberger^{1,2}, ¹University of East Anglia, ²Norwich Medical School
 Topic Area: LONG-TERM MEMORY: Episodic

A79 Targeted memory reactivation during sleep and memory suppression

Eitan Schechtman¹, Anna Lampe¹, Brianna J Wilson¹, Eunbi Kwon¹, Michael Anderson², Ken A Paller¹, ¹Northwestern University, ²University of Cambridge
 Topic Area: LONG-TERM MEMORY: Episodic

A80 Distinct neural substrates for scene perception and imagery

Adam Steel¹, Madeleine Billings¹, Caroline Robertson¹, ¹Dartmouth College
 Topic Area: LONG-TERM MEMORY: Episodic

A81 Divergent thinking and constructing future events: Dissociating old from new ideas

Preston Thakral¹, Donna Rose Addis², Daniel Schacter¹, ¹Harvard University, ²Rotman Research Institute
 Topic Area: LONG-TERM MEMORY: Episodic

A82 Effects of Enhancement and Suppression Cueing on Long Term Memory

Janis Gaudreau¹, Harlan Fichtenholtz¹, ¹Keene State College
 Topic Area: LONG-TERM MEMORY: Other

A83 Strategy Implementation and Feedback Processing in Healthy Young Adults

Victoria Tilton-Bolowsky¹, Lucia Hong¹, James C. Borders², Sofia Vallila Rohrer¹, Yael Arbel¹, ¹MGH Institute of Health Professions, ²Teachers College, Columbia University
 Topic Area: LONG-TERM MEMORY: Other

A84 An Afternoon Nap Enhances Repetition Priming and Antipriming

Anna B Madden-Rusnak¹, Rebecca G Deason¹, Chad J Marsolek², Carmen Westenberg¹, ¹Texas State University, ²University of Minnesota
 Topic Area: LONG-TERM MEMORY: Priming

A85 Is neural conceptual space spherical? Intrinsic properties vs. artifacts in multidimensional scaling

Leyla Roksan Caglar¹, Dana Mastrovito², Stephen José Hanson¹, ¹Rutgers University Newark, ²Stanford University
 Topic Area: LONG-TERM MEMORY: Semantic

A86 The Role of the Left DLPFC in the Relationship between Metamemory Monitoring and Control

Casey Imperio¹, Elizabeth Chua^{1,2}, ¹CUNY the Graduate Center, ²Brooklyn College
 Topic Area: LONG-TERM MEMORY: Semantic

A87 Individual differences in learning rate are reflected in integration of feedback magnitude information

Berry Van den Berg¹, Timothy Sondej¹, Marty Woldorff², Monique Lorist¹,
¹University of Groningen, ²Duke University
 Topic Area: LONG-TERM MEMORY: Skill Learning

A88 Investigating theta oscillations in intermodal selective attention

Audrey Murray¹, Dave Saint-Amour¹, Isabelle Soulières¹, ¹Université du Québec à Montréal
 Topic Area: METHODS: Electrophysiology

A89 DeepMedic for automated lesion segmentation in chronic stroke

Nadait Gebremedhen¹, Craig Fraser¹, Stephen Snow¹, Corrine Durisko¹, Liam Berti¹, Jing Shixiong¹, Steve Jacobs¹, Julius Fridriksson², Julie Fiez¹,
¹University of Pittsburgh, ²University of South Carolina
 Topic Area: METHODS: Neuroimaging

A90 Oral Contraceptive Pills Reduce Cortical Thickness in Inferior Frontal Gyrus

Nicole Petersen¹, Nicholas Kearley¹, Dara Ghahremani¹, Jean-Baptiste Pochon¹, Megan Fry¹, Andrea Rapkin¹, Edythe London¹, ¹UCLA
 Topic Area: METHODS: Neuroimaging

A91 Extracellular free water increases relate to altered cognitive function in systemic lupus erythematosus

Xing Qian¹, Beatrice Rui Yi Loo¹, Hui Li Koh¹, Kwun Kei Ng¹, Anselm Mak²,
 Juan Helen Zhou¹, ¹Duke-National University of Singapore Medical School, ²National University of Singapore
 Topic Area: METHODS: Neuroimaging

A92 Decoding the intensity and frequency of TMS: A concurrent TMS-fMRI study

Farshad Rafiei¹, Dobromir Rahnev¹, ¹Georgia Tech.
 Topic Area: METHODS: Neuroimaging

A93 Characterizing Social Interaction Via Dyadic Hyperscanning Techniques

Ruohan Xia¹, Runzhi Chen¹, Kayden Stockwell¹, Tanya Evans¹, ¹University of Virginia

Topic Area: METHODS: Neuroimaging

A94 Using Bayesian model comparison allows for effective model comparison: A study of the simple reaction time task

Darije Custovic¹, Adam Hampshire¹, Bojan Nikolic², Claudia Clopath¹, ¹Imperial College London, ²Cavendish Laboratory, University of Cambridge

Topic Area: METHODS: Other

A95 Focal Neurostimulation of Attention Networks

Benjamin Deck¹, Jared Zimmerman², Brian Erickson¹, Brooke Yeager¹, Apoorva Kelkar¹, John Medaglia¹, ¹Drexel University, ²University of Pennsylvania

Topic Area: METHODS: Other

A96 Multivoxel pattern analyses of brain structure to classify dyslexia

Ja Young Choi¹, Gabrielle Torre², Yaminah Carter², Terri Scott², Satrajit Ghosh³, Tyler Perrachione², ¹Harvard University, ²Boston University, ³MIT

Topic Area: NEUROANATOMY

A97 The effect of drug of abuse and treatment status on the neurobiology of craving: a meta-analysis of neuroimaging studies

Francoantonio Devoto¹, Giulia Spinelli¹, Giulia Scotti¹, Laura Zapparoli¹, Eraldo Paulesu¹, ¹University of Milano-Bicocca, Department of Psychology

Topic Area: OTHER

A98 Brief cognitive screening in youth at risk for psychosis

David Roalf¹, Kosha Ruparel¹, Tyler Moore¹, Monica Calkins¹, Ruben Gur¹, ¹University of Pennsylvania

Topic Area: OTHER

A99 Mesoscopic functional interactions in human cortex during sleep and wake states

Annabelle Tao¹, Jiarui Wang¹, Gabriel Kreiman¹, ¹Harvard Medical School

Topic Area: OTHER

A100 Auditory Sensory Gating: Effects of Noise

Fan-Yin Cheng¹, Julia Campbell¹, Chang Liu¹, ¹University of Texas at Austin

Topic Area: PERCEPTION & ACTION: Audition

A101 This sounds good! Hurdling and tap-dancing re-aferences are processed differently in the brain

Nina Heins¹, Jennifer Pomp¹, Karen Zentgraf², Markus Raab³, Ricarda Schubotz¹, ¹Department of Psychology, University of Muenster, Germany, ²Department of Movement Science and Training in Sports, Inst, ³Institute of Psychology, German Sport University Cologne

Topic Area: PERCEPTION & ACTION: Audition

A102 Individual variability in functional organization of the human and monkey auditory cortex

Jianxun Ren¹, Hesheng Liu², Ting Xu³, Franziska Schoeppe², Danhong Wang², Meiling Li², Yuanxiang Lin⁴, Julian Ramirez⁵, Jie Lu⁶, Luming Li¹, Jyrki Ahveninen², ¹Tsinghua University, ²Massachusetts General Hospital, ³Child Mind Institute, ⁴Fujian Medical University, China, ⁵Oregon Health and Science University, ⁶Xuanwu Hospital, China

Topic Area: PERCEPTION & ACTION: Audition

A103 Evaluating predispositions for music training: white matter in infancy relates to music aptitude abilities in preschool

Jennifer Zuk^{1,2}, Jolijn Vanderauwera^{1,2}, Ally Lee¹, Michelle Gonzalez¹, Jade Dunstan¹, Ted Turesky^{1,2}, Doroteja Rubez¹, Xi Yu^{1,2}, Ellen Grant^{1,2}, Nadine Gaab^{1,2}, ¹Boston Children's Hospital, ²Harvard Medical School

Topic Area: PERCEPTION & ACTION: Audition

A104 Bouncing the Network: Modeling Auditory-Vestibular Interactions Underlying Infants' Perception of Musical Rhythm

Parker Tichko¹, Edward Large², ¹Northeastern University, ²University Of Connecticut

Topic Area: PERCEPTION & ACTION: Development & aging

A105 Habituation of Involuntary Imagery as a Function of Stimulus Threat and Frequency

Dennis Lambert¹, Christina Wong¹, Ezequiel Morsella¹, ¹San Francisco State University

Topic Area: PERCEPTION & ACTION: Motor control

A106 Rhythmic resynchronization ability predicts melodic intonation therapy performance and reading fluency

Yi Wei¹, Edward Large¹, ¹University of Connecticut

Topic Area: PERCEPTION & ACTION: Motor control

A107 Sensitivity to empty intervals in multimodal stimulation: A visuotactile study of time perception

Mercedes Villalonga¹, Rachel Sussman¹, Robert Sekuler¹, ¹Brandeis University

Topic Area: PERCEPTION & ACTION: Multisensory

A108 Effects of Repeated Tactile Brain-Computer Interface on the Behavioural Responses of Patients with Disorder of Conscious

Fan Cao¹, Nensi Murovec², Ren Xu², Yangyang Miao³, Jing Jin³, Katrin Mayr¹, Christoph Guger², ¹g.tec neurotechnology USA, Inc., ²Guger Technologies OG, ³East China University of Science and Technology

Topic Area: PERCEPTION & ACTION: Other

A109 Hierarchical statistical learning: Behavioral, neuroimaging, and neural network modeling investigations

Cybelle Smith¹, Sharon Thompson-Schill¹, Anna Schapiro¹, ¹University of Pennsylvania

Topic Area: PERCEPTION & ACTION: Other

A110 Identifying networks with common changes in representational similarity over time using jackknife resampling

Essang Akpan¹, Marc N. Coutanche¹, ¹University of Princeton

Topic Area: PERCEPTION & ACTION: Vision

A111 Psychometric and electrophysiological characterization of visual processing in 22q11.2 Deletion Syndrome

Catherine Halpern¹, Ana Francisco¹, Chloe Ifrah¹, Mariana Santos Lucas¹, John Foxe², Sophie Molholm¹, ¹Albert Einstein College of Medicine, ²University of Rochester

Topic Area: PERCEPTION & ACTION: Vision

A112 Dissociable cortical networks for dynamic and static face processing emerge early in childhood

Frederik Kamps¹, Daniel Dilks², ¹MIT, ²Emory University

Topic Area: PERCEPTION & ACTION: Vision

A113 White matter connectivity in fusiform gyrus is associated with face perceptual deficits in developmental prosopagnosia

Maruti Mishra^{1,2}, Emma Brown^{2,3}, Alice Lee³, Xian Li^{1,2}, Regan Fry^{1,2}, Joseph Degutis^{1,2}, ¹Harvard Medical School, ²VA Boston healthcare, ³Boston University

Topic Area: PERCEPTION & ACTION: Vision

A114 We Prefer Less Input: Attraction, Goodness-of-Fit, and the Partial Information EffectJavid Sadr¹, ¹University of Lethbridge

Topic Area: PERCEPTION & ACTION: Vision

A115 Typical facial expression recognition without motor simulationGilles vannuscorps, Michael Andres¹, Alfonso Caramazza², ²Harvard, ¹Université catholique de Louvain

Topic Area: PERCEPTION & ACTION: Vision

A116 Rapid motor responses based on perceived brightness, not on local contrastCary Wang¹, Marjan Persuh^{1,2}, ¹BMCC, ²CUNY

Topic Area: PERCEPTION & ACTION: Vision

A117 The effects of race from the eye region: An ERP study from an Asian sampleMin Hooi Yong¹, Alexandre Schaefer², ¹Sunway University, ²Monash University

Topic Area: PERCEPTION & ACTION: Vision

A118 Multivariate fMRI evidence of opposite laterality and contra-hemifield bias for words and facesZhiheng Zhou^{1,2}, Lars Strother², ¹University of California Davis, ²University of Nevada Reno

Topic Area: PERCEPTION & ACTION: Vision

A119 DRD2 polymorphism and sensitivity to losses during value-based decision-makingCristina Banuelos¹, Kasey Creswell¹, Stephen Manuck², Peter Gianaros², Timothy Verstynen¹, ¹Carnegie Mellon University, ²University of Pittsburgh

Topic Area: THINKING: Decision making

A120 Neural correlates underlying spatial and social navigational distance processing.Ya-Ting Chang¹, Yi-Chuang Lin¹, Charlotte Maschke², Joshua Oon Soo Goh¹, ¹National Taiwan University, ²Technical University Dresden

Topic Area: THINKING: Decision making

A121 Electrophysiological indices of lowering standardsNeil M. Dundon¹, Viktoriya Babenko¹, Alex Stuber¹, Tom Bullock¹, Mary MacLean¹, Javier Garcia², Scott T. Grafton¹, ¹University of California, Santa Barbara, ²US Combat Capabilities Development Command

Topic Area: THINKING: Decision making

A122 The Nuances of Norepinephrine: Salivary Alpha-Amylase's Role as a Biomarker in tDCS-Directed Judgment & Decision MakingLauren M. Kim¹, Michael J. Lundie¹, Matthew J. Kmieciak¹, Harshith Dasara¹, Daniel C. Krawczyk¹, ¹The University of Texas at Dallas

Topic Area: THINKING: Decision making

A123 ERP measures of conflict monitoring and inhibition during a Go/NoGo task are related to response speedDavid Shucard^{1,2}, Xuedi Wang^{1,2,3}, Thomas Covey^{1,2,3}, Matthew Evans^{1,2,3}, Janet Shucard^{1,2,3}, ¹University at Buffalo, ²Jacobs Sch Med & Biomed Scie, ³SUNY

Topic Area: THINKING: Decision making

A124 Creative idea generation is promoted by an optimal level of thought constraintAnna Smith¹, Nick Brosowsky¹, Paul Seli¹, ¹Duke University

Topic Area: THINKING: Other

A125 Reduced certainty preference after solving problems with insight than solving with analysisYuhua Yu¹, Carola Salvi², Mark Beeman¹, ¹Northwestern University, ²University of Texas at Austin

Topic Area: THINKING: Problem solving

A126 A large scale internet-based study on the reasoning abilities of the general populationMaria Balaet¹, Adam Hampshire¹, ¹Imperial College London

Topic Area: THINKING: Reasoning

A127 An fMRI investigation of functional network connectivity during abstract reasoningThomas Morin¹, Kylie Moore¹, Chantal Stern¹, ¹Boston University

Topic Area: THINKING: Reasoning

A128 Subdivisions of the Anterior Cingulate Cortex related to the Intuitive Psychology and Intuitive Physics DichotomyAna Navarro Cebrian¹, Jason Fischer¹, ¹Johns Hopkins University

Topic Area: need topic

Session B

Sunday, March 15, 8:00–10:00 am, Exhibit Hall C

B1 Auditory Cortex Tracks Masked Acoustic Onsets in Background Speech: A Potential Stream Segregation MechanismChristian Brodbeck¹, Alex Jiao¹, L. Elliot Hong¹, Jonathan Z. Simon¹, ¹University of Maryland, College Park

Topic Area: ATTENTION: Auditory

B2 Decoding attention control and selection in young and older adultsXiangfei Hong¹, Jiaqi Wang², Jianan Wang², Junfeng Sun², Jijun Wang¹, Chunbo Li¹, Mingzhou Ding³, Shanbao Tong², ¹Shanghai Mental Health Center, ²Shanghai Jiao Tong University, ³University of Florida

Topic Area: ATTENTION: Development & aging

B3 Crossmodal modulation of the intracortical depth profile of BOLD signals in auditory cortexKaisu Lankinen^{1,2}, Seppo P. Ahlfors^{1,2}, Fahimeh Mamashli^{1,2}, Anna Blazejewska^{1,2}, Tommi Raji^{3,4}, Jyrki Ahveninen^{1,2}, ¹Massachusetts General Hospital, ²Harvard Medical School, ³Shirley Ryan AbilityLab, ⁴Northwestern University

Topic Area: ATTENTION: Multisensory

B4 Testing a cellular metabolism account of attention and capacity limits in perceptionMerit Bruckmaier¹, Ilias Tachtsidis¹, Phong Phan¹, Nilli Lavie¹, ¹University College London

Topic Area: ATTENTION: Nonspatial

B5 Failing to Integrate Feature Representations During Visual SearchJunha Chang¹, Kyle Cave¹, Lisa Sanders¹, ¹University of Massachusetts Amherst

Topic Area: ATTENTION: Other

B6 Difference of attention to the physical attractiveness of the opposite and same sexKohei Fuseda¹, Jun'ichi Katayama¹, ¹Kwansei Gakuin University

Topic Area: ATTENTION: Other

B7 Task-induced attention gates unconscious semantic interference, via loadShao-Min Hung¹, Daw-An Wu¹, Shinsuke Shimojo¹, ¹California Institute of Technology

Topic Area: ATTENTION: Other

B8 The influence of baseline attentional differences on tDCS-mediated learningBenjamin Gibson¹, Teagan Mullins¹, Jacob Spinks¹, Denica Aragon¹, Leslie Bauchman¹, Melissa Heinrich¹, Vince Clark¹, ¹University of New Mexico

Topic Area: ATTENTION: Spatial

B9 Spontaneous eye-movements reduce resting-state-network modularity by increasing visual-sensorimotor connectivityUri Hasson¹, Cemal Koba², Giuseppe Notaro¹, ¹University of Trento, ²IMT School for Advanced Studies Lucca

Topic Area: ATTENTION: Spatial

B10 Inter-subject correlation of eye movements predicts test scores in online video educationJens Madsen¹, Sara U. Júlio¹, Pawel J. Gucik¹, Richard Steinberg¹, Lucas C. Parra¹, ¹City College of New York

Topic Area: ATTENTION: Spatial

B11 Age-related deficits in alpha-band modulation during probabilistic cueing of visual spatial attentionJiaqi Wang¹, Jianan Wang¹, Junfeng Sun¹, Shanbao Tong¹, Xiangfei Hong², ¹Shanghai Jiao Tong University, ²Shanghai Mental Health Center

Topic Area: ATTENTION: Spatial

B12 Exploring The Relationship Between Adverse Childhood Experiences and Blunted HPA-Axis Function Found Later In LifeCarrie Burnett¹, Eric Goedereis¹, Stephanie Schroeder¹, ¹Webster University

Topic Area: EMOTION & SOCIAL: Development & aging

B13 Receptive Music Intervention in Older Adults: A Multimodal Longitudinal StudyPsyche Loui¹, Grace Wilson², Valerie Goutama¹, Maiya Geddes³, Suzanne Hanser⁴, Manoj Bhasin⁵, ¹Northeastern University, ²Simmons College, ³Harvard Medical School, ⁴Berkeley College of Music, ⁵Emory University

Topic Area: EMOTION & SOCIAL: Development & aging

B14 Disruption to the Uncinate Fasciculus among young children with ADHD: The role of co-morbid Callous-Unemotional TraitsPaulo Graziano¹, Dea Garic¹, Megan Hare¹, Anthony Dick¹, ¹Florida International University

Topic Area: LONG-TERM MEMORY: Episodic

B15 The neural outcomes of emotional regulation following Mindfulness Based Stress Reduction trainingHsuan Chi Liu¹, Jin Mei Hu², Chuan Yueh Hsu², Zenas C. Chao³, Joshua Oon Soo Goh¹, Chien Te Wu¹, ¹National Taiwan University, ²Chinese MBSR Service, ³The University of Tokyo

Topic Area: EMOTION & SOCIAL: Emotional responding

B16 Assessing the relationship between alpha power and hemodynamic activation during emotional mental imageryMaeve Boylan¹, W. Matthew Friedl¹, Harold Rocha¹, Andreas Keil¹, ¹University of Florida

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

B17 Action-Value Derived Evidence for Greedy Affect Control: an fMRI StudyKeith Bush¹, G. Andrew James¹, Clint Kilts¹, ¹University of Arkansas for Medical Sciences

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

B18 Brain Network Activation during Emotional Response Inhibition Impacted by Perceived Stress in AdolescentsEleanor Schuttenberg^{1,2}, Julia Cohen-Gilbert^{1,2}, Jennifer Sneider^{1,2}, Emily Oot^{1,2}, Anna Seraikas^{1,2}, Sion Harris^{2,3}, Lisa Nickerson^{1,2}, Marisa Silveri^{1,2}, ¹McLean Hospital, ²Harvard Medical School, ³Boston Children's Hospital

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

B19 Social Context Inhibits What Has Been Semantically Primed: An Event-Related Potential StudySujata Sinha¹, Maud Haffar¹, Hugo Pantecouteau², Amanda Tardif¹, Sheila Bouten¹, Ashley Chau-Morris¹, J.Bruno Debrulle¹, ¹McGill University, ²École Normale Supérieure

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

B20 Neural Correlates of Aesthetic Engagement with LiteratureYuchao Wang^{1,2}, Franziska Hartung², Marloes Mak³, Roel Willems³, Anjan Chatterjee², ¹Haverford College, ²Penn Center for Neuroaesthetics, ³Radboud University Nijmegen

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

B21 Proposal for a working model for bi-directional neural-aesthetic translational application of neuroaestheticsKelly Adams¹, Jonsara Ruth², Annabelle Adams-Beyea², Able Bloodgood³, Castle Bloodgood⁴, Martin Goldstein⁵, ¹Paul Bloodgood Center for the Study of Neuroaesthetics, ²Parsons School of Design, The New School for Social Research, ³Bard High School for Early College, ⁴Hunter's Point Community MS, ⁵Icahn School of Medicine

Topic Area: EMOTION & SOCIAL: Other

B22 Neural correlates of socio-cognitive processes in deception: Meta-Analysis of Functional Neuroimaging Studies of LyingEn-Syuan Huang¹, Ying-Chen Liu², Chih-Mao Huang², ¹Institute of Neuroscience, National Yang-Ming University, TW, ²NCTU, TW

Topic Area: EXECUTIVE PROCESSES: Other

B23 A Functional Neuroimaging Investigation of Moral Foundations TheoryMaria Khoudary¹, Eleanor Hanna Valassis¹, Vijeth Iyengar¹, Scott Clifford², Felipe De Brigard¹, Walter Sinnott-Armstrong¹, Roberto Cabeza¹, ¹Duke University, ²University of Houston

Topic Area: EMOTION & SOCIAL: Other

B24 Perception of dance movements modulates sensorimotor activity: mu suppression as an index for embodied emotionsClaudia Corradi¹, Jorge Almansa¹, Eirin Sabel¹, Jonathan Silas², Alexander Jones², Beatriz Calvo-Merino¹, ¹City, University of London, ²Middlesex University

Topic Area: EMOTION & SOCIAL: Person perception

B25 Pupil size during authenticity recognition in laughter and cryingGonçalo Cosme¹, Vânia Tavares¹, Mónica Costa², César Lima³, Thomas Wilcockson⁴, Trevor Crawford⁵, Diana Prata¹, ¹Instituto de Biofísica e Engenharia Biomédica, ²ISPA, ³ISCTe-IUL, ⁴Loughborough University, ⁵Lancaster University

Topic Area: EMOTION & SOCIAL: Person perception

B26 Attentional Prioritization of Negative Appearance-Behavior Cues in Impression Formation

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Topic Area: EMOTION & SOCIAL: Person perception

B27 Judging books by their covers: A candidate neurocognitive mechanism underpinning bias towards facial anomalies

Clifford Workman¹, Geoffrey Aguirre¹, Anjan Chatterjee¹, ¹University of Pennsylvania

Topic Area: EMOTION & SOCIAL: Person perception

B28 Developmental Changes in Neural Substrates of Inhibitory Control from Childhood to Adolescence among Youths with and without

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Topic Area: EXECUTIVE PROCESSES: Development & aging

B29 Individual differences in neuroanatomy predict neurostimulation related multitasking gains in older adults

Kevin Jones¹, Theodore Zanto¹, Avery Ostrand¹, Wan-Yu Hsu¹, Adam Gazzaley¹, ¹University of California, San Francisco

Topic Area: EXECUTIVE PROCESSES: Development & aging

B30 Theta-Band Power in Context-Dependent Task-Switching

Dillan Cellier¹, Marco Pipoly¹, Kai Hwang¹, ¹University of Iowa

Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

B31 Contributions of fatigue and automatic processing to cognitive flexibility

Michael Imburgio¹, Joseph Orr¹, ¹Texas A&M University

Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

B32 Hierarchical organization of the prefrontal cortex independent of sensory modality

Taehyun Yoo¹, Minho Shin¹, Hyeon-Ae Jeon¹, ¹DGIST, Daegu, Republic of Korea

Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

B33 The effect of feedback validity on learning and its relation to self-efficacy in children: an ERP study

Xinyi He¹, Yael Arbel¹, ¹MGH Institute of Health Professions

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

B35 BMI Correlates with Brain Activity during the Stroop Task in Individuals with Overweight and Obesity

Geneva Litz¹, Jamie Peven¹, John Jakici¹, Renee Rogers¹, Chelsea Stillman¹, Jennifer Watt¹, Kirk Erickson¹, ¹University of Pittsburgh

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

B36 The neural correlates involved in metaphor comprehension with varying levels of familiarity and context

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Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

B37 Executive functioning predicts unique relationships between PTSD symptoms and resting-state connectivity

Audreyana Jagger-Rickels¹, Anna Stumps², David Rothlein¹, Travis Evans³, Francesca Fortenbaugh⁴, William Millberg⁴, Brian Marx⁵, Regina McGlinchey⁴, Jenn Fonda⁶, Cate Fortier⁷, Joe Degutis², Mike Esterman⁵, ¹Neuroimaging Research for Veterans (NeRVe) Center, VA Boston, ²Translational Research Center for TBI and Stress Disorders, ³VA Boston Healthcare System, ⁴Translational Research Center for TBI and Stress Disorders, ⁵National Center for PTSD, VA Boston, ⁶Boston University, ⁷Harvard Medical School

Topic Area: EXECUTIVE PROCESSES: Other

B38 Noradrenergic contributions to reinforcement learning in Parkinson's disease -- ultra-high field imaging and atomoxetine

Claire O'Callaghan¹, Naresh Subramaniam², Frank Hezemans³, Catarina Rua², Rong Ye², Luca Passamonti², Trevor Robbins², James Rowe², ¹Brain and Mind Centre, University of Sydney, ²University of Cambridge, UK, ³Medical Research Council Cognition and Brain Sciences Unit

Topic Area: EXECUTIVE PROCESSES: Other

B39 Dual-Task Conditions Reveal Long-Term Postural Stability Deficits Associated With History of Concussion

Nicholas Reilly¹, Jessica Prebor¹, Jacquelyn Moxey¹, Eric Schussler¹, ¹Old Dominion University

Topic Area: EXECUTIVE PROCESSES: Other

B40 Increased Midfrontal Theta-Band Power During an N-Back Task Following Working Memory Training

Madeline Gregory¹, Thomas Covey¹, Janet Shucard¹, David Shucard¹, ¹State University of New York at Buffalo

Topic Area: EXECUTIVE PROCESSES: Working memory

B41 Independent effects of socioeconomic status and genetics on adolescent brain development and working memory

Nicholas Judd¹, Bruno Sauce¹, John Wiedenhoeft², Jeshua Tromp³, Hugh Garavan⁴, Torkel Klingberg¹, ¹Karolinska Institutet, ²University of Goettingen, ³University of Leiden, ⁴University of Vermont

Topic Area: EXECUTIVE PROCESSES: Working memory

B42 The Use of Eye-tracking and Neuroimaging to Examine Cognitive Load During Multimedia Learning

Stephanie Juth¹, Stephanie Juth¹, David Feldon¹, Carla Orellana¹, Ron Gillam¹, ¹Utah State University

Topic Area: EXECUTIVE PROCESSES: Working memory

B43 Mobile based EEG assessment of fatigue in clinical practitioners

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Topic Area: EXECUTIVE PROCESSES: Working memory

B44 Reward Influences the Shift of Attention Among Items in Working Memory

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Topic Area: EXECUTIVE PROCESSES: Working memory

B45 Using an Inverted Encoding Model to Measure Memory Intrusions in a Think/NoThink Task

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Topic Area: EXECUTIVE PROCESSES: Working memory

B46 Atypical white matter mechanisms underlying reading development in adolescents with fetal alcohol spectrum disorders

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Topic Area: LANGUAGE: Development & aging

B47 Structural neural correlates of reading development in children with early language delay

Carolyn King^{1, 2}, Jolijn Vanderauwera³, Jennifer Zuk^{1, 2}, Theodore Turesky^{1, 2}, Nora Jamouille⁴, Nora Raschle⁵, Nadine Gaab⁶, ²Boston Children's Hospital, ²Harvard Medical School, ³Universite Catholique de Louvain, ⁴University of Groningen, ⁵University of Zurich, ⁶Associate Professor of Pediatrics
Topic Area: LANGUAGE: Development & aging

B48 Developmental changes in the processing of statistical information in speech: an EEG study

Yi-Lun Weng¹, Julie M. Schneider¹, Zhenghan Qi¹, ¹University of Delaware
Topic Area: LANGUAGE: Development & aging

B49 Interplay between task demands and language mode in bilingual word recognition: Evidence from ERPs

Liv Hoversten¹, Clara Martin¹, ¹Basque Center on Cognition, Brain and Language (BCBL)
Topic Area: LANGUAGE: Lexicon

B50 Do Mandarin-French bilinguals hear Chinese when reading French? ERP evidence of proficiency level

Yaru WU¹, Jeremy Yeaton², Frédéric Ise³, ¹MoDyCo, UMR 7114, CNRS/Paris Nanterre:LPP, CNRS (UMR 7018), ²Laboratoire de Psychologie Cognitive UMR 7290, France, ³CNRS Modyco/Paris Nanterre University
Topic Area: LANGUAGE: Lexicon

B51 Neural Indices of speech processing of consonant cluster word onsets in English, Korean, and Spanish listeners

Minsoo Ko¹, Alahna Cogburn¹, Teresa Ribas², Valerie Shafer¹, ¹City University of New York, Graduate Center, ²University of Barcelona
Topic Area: LANGUAGE: Other

B52 Acoustic and visual parameters underlying word-shape sound symbolism

Simon Lacey¹, Yaseen Jamal², Sara List², Kelly McCormick², K. Sathian¹, Lynne C. Nygaard², ¹Penn State College of Medicine, ²Emory University
Topic Area: LANGUAGE: Other

B53 Code-switching during composition: MEG evidence from Korean-English bilinguals

Sarah Phillips¹, Liina Pylkkänen¹, ¹New York University
Topic Area: LANGUAGE: Other

B54 Heschl's gyrus encoding of abstract context-invariant speech cues in natural speech perception

Kyle Rupp¹, Fernando Llanos¹, Madison Remick¹, Bharath Chandrasekaran¹, Taylor Abel¹, ¹University of Pittsburgh
Topic Area: LANGUAGE: Other

B55 An EEG Study of Aphasia Recovery in Bilinguals

Jennifer Segawa¹, Meredith Adams¹, Alexis Medeiros¹, ¹Stonehill College
Topic Area: LANGUAGE: Other

B56 Automatic Activation and Processing of Color-Emotion Metaphors in Chinese-English Bilinguals: Evidence from ERPs

Junqing Chen¹, Natalie Kacinik^{1, 2}, ¹City University of New York, ²Brooklyn College

Topic Area: LANGUAGE: Semantic

B57 Psychophysiological correlates of novel meaning processing in bilingualism

Katarzyna Jankowiak¹, Marcin Naranowicz¹, ¹Adam Mickiewicz University, Poznan

Topic Area: LANGUAGE: Semantic

B58 Predicting Semantic Category Typicality from Brain Activation Patterns in Healthy Adults and Individuals with Aphasia

Ran Li¹, Tyler Perrachione¹, Jason Tourville¹, Swathi Kiran¹, ¹Boston University

Topic Area: LANGUAGE: Semantic

B59 Traveling back in time: how do temporal terms shape our expectations for the unfolding linguistic input

Yanina Prystauka¹, Stephanie Chinwo¹, Gerry Altmann¹, ¹University of Connecticut

Topic Area: LANGUAGE: Semantic

B60 Analogy questions can be solved with addition and subtraction of fMRI pattern

Meng-Huan Wu¹, Andrew Anderson¹, Robert Jacobs¹, Rajeev Raizada¹, ¹University of Rochester

Topic Area: LANGUAGE: Semantic

B61 We 'might could' revisit syntactic processing: Studying dialectal variation with event-related potentials

Holly A. Zaharchuk¹, Adrianna Shevlin¹, Janet G. van Hell¹, ¹The Pennsylvania State University

Topic Area: LANGUAGE: Syntax

B62 Evidence for adult-like hippocampal pattern similarity across shared contexts in early childhood

Elizabeth Eberts¹, Susan Benaar¹, Chi Ngo², Emily Cowan¹, Cat Camacho³, Susan Perlman³, Vishnu Murty¹, ¹Temple University, ²Max Planck Institute for Human Development, ³Washington University in St. Louis

Topic Area: LONG-TERM MEMORY: Development & aging

B63 Relationships Between Sleep Quality and Neural Reinstatement of Associative Memory in Young and Older Adults

Emily Hokett¹, Soroush Mirjalili¹, Audrey Duarte¹, ¹Georgia Institute of Technology

Topic Area: LONG-TERM MEMORY: Development & aging

B64 Utilizing socioemotional processing to alter older adults' memory: implications for individual differences in cognition

Rachel Van Boxtel¹, Jaclyn Ford¹, Elizabeth Kensinger¹, ¹Boston College

Topic Area: LONG-TERM MEMORY: Development & aging

B65 March Madness: Behavioral, physiological, and neural effects of continuously updated surprise

James Antony¹, Sam McDougle², Thomas Hartshorne¹, Ken Pomeroy³, Todd Gureckis⁴, Uri Hasson¹, Ken Norman, ¹Princeton University, ²University of California, Berkeley, ³www.kenpom.com, ⁴New York University

Topic Area: LONG-TERM MEMORY: Episodic

B66 An ERP investigation of the effects of acute stress on memory formation and judgments of learning

Felicia Chaisson¹, Lauryn Burleigh¹, Steven Greening¹, Heather Lucas¹, ¹Louisiana State University

Topic Area: LONG-TERM MEMORY: Episodic

B67 The spatial reconstruction task is a sensitive measure of declarative memory in adults with traumatic brain injury

Natalie Covington¹, Neal Cohen², Melissa Duff¹, ¹Vanderbilt University Medical Center, ²University of Illinois at Urbana Champaign
Topic Area: LONG-TERM MEMORY: Episodic

B68 The Effects of Time of Day and Brief Recovery Sleep on Emotional Perception Abilities following Total Sleep Deprivation

Tony Cunningham^{1,2}, Ryan Bottary³, Elizabeth Kensinger³, Robert Stickgold¹, ¹Beth Israel Deaconess Medical Center, ²Harvard Medical School, ³Boston College
Topic Area: LONG-TERM MEMORY: Episodic

B69 Slow oscillation-spindle coupling during slow-wave sleep impairs emotional memory consolidation following stress

Dan Denis¹, Sara Y. Kim¹, Sarah M. Kark², Ryan T. Daley³, Sara E. Alger⁴, Elizabeth A. Kensinger³, Jessica D. Payne¹, ¹University of Notre Dame, ²University of California Irvine, ³Boston College, ⁴Walter Reed Army Institute of Research
Topic Area: LONG-TERM MEMORY: Episodic

B70 Enhancing object-location associative memory through reward

Evan Grandot¹, Michael S. Cohen², Paul J. Reber¹, ¹Northwestern University, ²University of Pennsylvania
Topic Area: LONG-TERM MEMORY: Episodic

B71 Memory for Feedback Events Depends on Feedback Valence and Timing: Evidence from Event-Related Potentials

Gerrit Hölting¹, Axel Mecklinger¹, ¹Saarland University
Topic Area: LONG-TERM MEMORY: Episodic

B72 Spatiotemporal dynamics between interictal spikes and ripples during associative memory processing in humans

Simon Henin¹, Anita Shankar², Helen Borges¹, Adeen Flinker¹, Werner Doyle¹, Daniel Friedman¹, Orrin Devinsky¹, Gyorgy Buzsaki³, Anli Liu¹, ¹NYU Langone Medical Center, ²The Ohio State University, ³NYU Neuroscience Institute
Topic Area: LONG-TERM MEMORY: Episodic

B73 Hippocampal-targeted theta-patterned stimulation immediately enhances memory processing: A simultaneous TMS/fMRI study

Molly S. Hermiller¹, Rachael A. Young¹, Yu Fen Chen¹, Todd B. Parrish¹, Joel L. Voss¹, ¹Northwestern University
Topic Area: LONG-TERM MEMORY: Episodic

B74 Remembering the link: Free-recall performance in individuals at risk for schizophrenia

Aslihan Imamoglu¹, Claudia Foubert¹, Stephanie Langella¹, Aysenil Belger², Kelly Giovanello¹, ¹University of North Carolina, Chapel Hill, ²UNC Frank Porter Graham Child Development Institute
Topic Area: LONG-TERM MEMORY: Episodic

B75 Hippocampal activity mediates the relationship between successful memory encoding and pupil response

Alex Kafkas¹, Nanne Kukkonen¹, Daniela Montaldi¹, ¹University of Manchester
Topic Area: LONG-TERM MEMORY: Episodic

B76 Computational accounts for memory in reinforcement learning

John Ksander¹, Christopher Madan², Angela Gutches¹, ¹Brandeis University, ²University of Nottingham
Topic Area: LONG-TERM MEMORY: Episodic

B77 Where does this go? Memory accuracy for object locations across egocentric and allocentric space in aging

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Topic Area: LONG-TERM MEMORY: Episodic

B78 Moment-to-moment and individual differences in spontaneous lapses of attention at encoding predict subsequent memory

Kevin P. Madore¹, Anna Khazenzon¹, Anthony Norcia¹, Anthony Wagner¹, ¹Stanford University
Topic Area: LONG-TERM MEMORY: Episodic

B79 Unexpected but plausible: The consequences of disconfirmed predictions for episodic memory formation

Axel Mecklinger¹, Gerrit Hölting¹, Lika Ranker¹, Kathrin Eschmann², ¹Saarland University, ²Cardiff University
Topic Area: LONG-TERM MEMORY: Episodic

B80 Interactions between categorical and temporal structure during retrieval

Daniel Rubinstein¹, Christoph Weidemann², Nora Herweg², Ethan Solomon², Michael Kahana², Michael Sperling¹, ¹Thomas Jefferson University, ²University of Pennsylvania
Topic Area: LONG-TERM MEMORY: Episodic

B81 Actively testing hypotheses using acquired information during encoding enhances delayed memory

Xinxu Shen¹, Vishnu Murty¹, David Smith¹, ¹Temple University
Topic Area: LONG-TERM MEMORY: Episodic

B82 How is Intentional Forgetting Reflected in Implicit Eye Movements?

Jonathon Whitlock¹, Yipei Lo¹, Judy Chiu¹, Lili Sahakyan¹, ¹University of Illinois at Urbana-Champaign
Topic Area: LONG-TERM MEMORY: Episodic

B83 Hippocampal Contributions to the Acquisition of Response Contingencies during Value-Based Reinforcement Learning

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Topic Area: LONG-TERM MEMORY: Other

B84 The varied influence of prior knowledge on perception, retention, and new learning

Erik A. Wing¹, Ford Burles¹, Jennifer D. Ryan¹, Asaf Gilboa¹, ¹Rotman Research Institute, Baycrest
Topic Area: LONG-TERM MEMORY: Other

B85 Long-term memory-guided attention and alpha-band oscillations: Implicit access to spatial information

Manda Fischer¹, Morris Moscovitch¹, Claude Alain Rotman², ¹University of Toronto, ²Research Institute at Baycrest Hospital
Topic Area: LONG-TERM MEMORY: Priming

B86 Laying the tracks for memory integration: Semantic processing of the first premise

Julia Wilson¹, Nicole Varga², Patricia Bauer¹, ¹Emory University, ²University of Texas at Austin
Topic Area: LONG-TERM MEMORY: Semantic

B87 Probing the effects of sleep reactivation on the kinematics and dynamics of movement with an EMG biofeedback task

Larry Y. Cheng¹, Tiffanie Che¹, Goran Tomic¹, Ken A. Paller¹, Marc W. Slutzky¹, ¹Northwestern University
Topic Area: LONG-TERM MEMORY: Skill Learning

B88 The relevance of a movement sequence enhances procedural memory consolidation in children

Shoshi Dorfberger¹, Hazar Moadi², Avi Karni², ¹Gordon college of education, ²Sagol Department of Neurobiology, University of Haifa
Topic Area: LONG-TERM MEMORY: Skill Learning

B89 An Automated Method For Correcting Ocular Artifacts In EEG

Brian Kraus¹, ¹Northwestern University
Topic Area: METHODS: Electrophysiology

B90 Prior reproductive experience modulates neural responses to infant faces across the postpartum period

Madison Bunderson¹, David Diaz¹, Angela Maupin¹, Nicole Landi^{1,2}, Marc Potenza^{1,3}, Linda Mayes¹, Helena Rutherford¹, ¹Yale Child Study Center, ³Yale University School of Medicine, ²Haskins Laboratories, UConn
Topic Area: METHODS: Neuroimaging

B91 Brain response to action-observation in the angular gyrus relates to autistic-like traits in healthy adults

Helga De Oliveira Miguel¹, Thien Nguyen¹, Emma Condy², Kosar Khaksari¹, Hadis Dashtestani¹, John Millerhagen¹, Sheida Shahmohammadi¹, Amir Gandjbakhche¹, ¹National Institute of Child Health and Human Development, ²National Institute of Mental Health
Topic Area: METHODS: Neuroimaging

B92 Integrating MVPA & graph theory methods: informational connectivity reveals dissociable functional networks in the brain

Ariana M. Familiar¹, Alice Xia¹, Sharon L. Thompson-Schill¹, ¹University of Pennsylvania
Topic Area: METHODS: Neuroimaging

B93 The relationship between brain structure and peak alpha frequency in children with autism and controls

Heather L. Green¹, Marissa Dipiero¹, Jeffrey Berman¹, Luke Bloy¹, Song Liu¹, Lisa Blaskey¹, Emily Kuschner¹, Megan Airey¹, Mina Kim¹, Rose Franzen¹, Theresa Mowad¹, Timothy P. L. Roberts¹, J.Christopher Edgar¹, ¹Children's Hospital of Philadelphia
Topic Area: METHODS: Neuroimaging

B94 The central executive network in Alzheimer's Disease: A meta-analysis of structural and functional MRI

Malvina Pietrzykowski¹, Katrina Daigle¹, Abigail Waters¹, Lance Swenson¹, David Gansler¹, ¹Suffolk University
Topic Area: METHODS: Neuroimaging

B95 Modeling of Mood States Using Multimodal Biometric Data

Akiko Obata¹, Masashi Kiguchi¹, Stephanie Sutoko¹, Hirokazu Atsumori¹, Ayako Nishimura¹, Tsukasa Funane¹, Hiromitsu Nakagawa¹, Masashi Egi¹, Hiroyuki Kuriyama¹, ¹Hitachi,Ltd. Research & Development Group
Topic Area: METHODS: Other

B96 Linking hierarchical cortical gradients to cognitive effects of intracranial electrical stimulation in the human brain

Kieran Fox¹, Lin Shi¹, Sori Baek¹, Omri Raccach¹, Brett Foster², Srijani Saha¹, Daniel Margulies³, Aaron Kucyi¹, Josef Parvizi¹, ¹Stanford University, ²Baylor College of Medicine, ³Centre National de la Recherche Scientifique
Topic Area: NEUROANATOMY

B97 Macroanatomical morphology of superior temporal lobe in adults with dyslexia

Alexandra Kapadia¹, Gabrielle-Ann Torre¹, Terri Scott¹, Yaminah Carter¹, Tyler Perrachione¹, ¹Boston University
Topic Area: NEUROANATOMY

B98 Local field potential phase preference to song onset in avian premotor region HVC

Jairo I. Chavez¹, ¹University of California, San Diego
Topic Area: OTHER

B99 Bio-electro stimulation therapy for the treatment of the non-motor symptoms of Parkinson's disease: a pilot study

Shiraz Mumtaz¹, Marina Ritchie¹, Karin Schon¹, ¹Boston University School of Medicine
Topic Area: OTHER

B100 Dissecting the pathophysiological circuit substrates of reward and anhedonia subdomains

Lena Trebaul¹, Victoria Ho¹, Kristen Ellard¹, Tracy Barbour¹, Joan A. Camprodon¹, ¹Massachusetts General Hospital
Topic Area: OTHER

B101 High-level neural categorization of human voices as revealed by fast periodic auditory stimulation

Francesca Barbero¹, Roberta Pia Calce¹, Bruno Rossion¹, Olivier Collignon^{1,2}, ¹University of Louvain, Belgium, ²University of Trento, Italy
Topic Area: PERCEPTION & ACTION: Audition

B102 Distributional learning of non-native contrasts in speakers of two languages, English and Korean

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Topic Area: PERCEPTION & ACTION: Audition

B103 Hearing Loss is Associated with Grey Matter Thickness Following Close Blast Exposure

Francesca Fortenbaugh¹, Michael Esterman¹, Alexander Sugarman¹, Catherine Fortier¹, Jennifer Fonda¹, David Salat¹, William Milberg¹, Regina McGlinchey¹, ¹VA Boston Healthcare System
Topic Area: PERCEPTION & ACTION: Audition

B104 Assessing auditory processing endophenotypes associated with Schizophrenia in individuals with 22q11.2 Deletion Syndrome

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Topic Area: PERCEPTION & ACTION: Audition

B105 The Development of Neural Responses to Faces in Infancy

Stefania Conte¹, John Richards¹, ¹University of South Carolina
Topic Area: PERCEPTION & ACTION: Development & aging

B106 Flickering light stimulation to promote brain gamma connectivity in aging

Yeseung Park¹, Kanghee Lee², Sang-Su Kim³, Do-Won Kim³, Eunchan Na², Wheesung Lee², Seung Wan Suh², Jaehyeok Park⁴, Seunghyup Yoo⁴, Ji Won Han², Ki Woong Kim², ¹Seoul National Univ., ²Seoul National University Bundang Hospital, ³Chonnam National University, ⁴Korea Advanced Institute of Science and Technology
Topic Area: PERCEPTION & ACTION: Development & aging

B107 Unexpected Perturbation of Immediate and Final Action Goals during Grasp Planning

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Topic Area: PERCEPTION & ACTION: Motor control

B108 Decoding Multisensory Speech Deficits in Autism

Michael Crosse¹, Aida Davila¹, Egor Sysoeva¹, John Foxe², Sophie Molholm¹, ¹Albert Einstein College of Medicine, ²University of Rochester

Topic Area: PERCEPTION & ACTION: Multisensory

B109 Sensory hyper-responsivity mediates intrinsic brain connectivity in Autism Spectrum Condition (ASC) and their parents

Yang-Teng Fan¹, Ming-Chu Chung², Ling Chu³, Yawei Cheng³, Chung-Hsin Chiang⁴, Chih-Mao Huang¹, Chien-Te Wu², Ovid J. L. Tzeng⁵, ¹National Chiao Tung University, ²National Taiwan University, ³National Yang-Ming University, ⁴National Chengchi University, ⁵Academia Sinica

Topic Area: PERCEPTION & ACTION: Multisensory

B110 Hippocampal dentate gyrus lesions interact with categorical face perception: A pattern separation story

Stevenson Baker¹, Ariana Youm², Yarden Levy³, Morris Moscovitch^{2, 4}, R. Shayna Rosenbaum^{1, 4}, ¹York University, ²University of Toronto, ³McMaster University, ⁴Rotman Research Institute

Topic Area: PERCEPTION & ACTION: Other

B111 Somatosensory stimulation during REM sleep produces changes in dream content

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Topic Area: PERCEPTION & ACTION: Other

B112 Aesthetic preferences modulate Mu activity over sensorimotor cortices during action observation of dance

Jorge Almansa¹, Claudia Corradi¹, Eirin Sabel¹, Alexander Jones², Jonathan Silas², Beatriz Calvo-Merino¹, ¹City, University of London, ²Middlesex University

Topic Area: PERCEPTION & ACTION: Vision

B113 Computational insights into human expertise for familiar and unfamiliar face recognition

Nicholas Blauch¹, Marlene Behrmann¹, David Plaut¹, ¹Carnegie Mellon University

Topic Area: PERCEPTION & ACTION: Vision

B114 Early Emotional Face Processing Deficits in Schizophrenia: a MEG Study

Yuki Fujishima¹, Yuichi Takei², Yumina Nakane¹, Manami Mizuyama¹, Yutaka Kato³, Masato Fukuda², Minami Tagawa², Takako Mitsudo¹, Yoji Hirano¹, Naruhito Hironaga¹, ¹Kyushu University School of Medicine, ²Gunma University Graduate School of Medicine, ³Tsutsuji Mental Hospital

Topic Area: PERCEPTION & ACTION: Vision

B115 Serial processing of multiple identities in single faces

Matthew Harrison¹, Lars Strother¹, ¹University of Nevada, Reno

Topic Area: PERCEPTION & ACTION: Vision

B116 Expertise effects on Embodied Emotion of Facial Expressions: A study using Somatosensory Evoked Potentials

Vasiliki Meletaki¹, Bettina Forster¹, Beatriz Calvo-Merino¹, ¹City, University of London

Topic Area: PERCEPTION & ACTION: Vision

B117 Interleaved training improves category learning by increasing perceptual similarity of within-category exemplars

Sharon Noh¹, ¹University of Texas at Austin

Topic Area: PERCEPTION & ACTION: Vision

B118 Applying microstructural models to understand the role of the fornix white matter in online scene processing

Marie-Lucie Read¹, Andrew D Lawrence¹, Kim S Graham¹, C. John Evans¹, Katja Umla-Runge¹, ¹Cardiff University, Wales

Topic Area: PERCEPTION & ACTION: Vision

B119 ERP Measures Of Human Cortical Long-Term Depression

Grace Vogel¹, Harlan Fichtenholtz¹, ¹Keene State College

Topic Area: PERCEPTION & ACTION: Vision

B120 Neurophysiological correlates of purchase decision-making

Ítalo Ali Diez¹, Josep Marco-Pallarés¹, ¹University of Barcelona, IDIBELL

Topic Area: THINKING: Decision making

B121 Neurocognitive Underpinning of Cross-cultural Differences in Risky Decision Making

Lan Ba¹, Xingjie Chen¹, Youngbin Kwak¹, ¹UMass Amherst

Topic Area: THINKING: Decision making

B122 Depressed individuals display distinct behavioral and neural representations in economic decision-making tasks

Avijit Chowdhury¹, Rongjun Yu¹, ¹National University of Singapore

Topic Area: THINKING: Decision making

B123 Using EEG to investigate the neuro-modulatory systems underlying stress and decision making

Thomas D. Ferguson¹, Olave E. Krigolson¹, ¹Centre for Biomedical Research, University of Victoria

Topic Area: THINKING: Decision making

B124 Neither Threat of Shock nor Acute Psychosocial Stress Affect Ambiguity Aversion

Deshawn Sambrano¹, Candace Raio², Elizabeth Phelps¹, ¹Harvard University, ²New York University

Topic Area: THINKING: Decision making

B125 1 Hour of Lost Sleep Impacts Financial Markets: Daylight Saving Time Compromises Financial Trading

Frank Song¹, Matthew Walker¹, ¹UC Berkeley

Topic Area: THINKING: Decision making

B126 Aesthetics in motion: Do motor responses to artworks predict aesthetic preferences?

Stacey Humphries¹, Clifford Workman¹, Gregor Hayn Leichsenring², Franziska Hartung¹, Anjan Chatterjee¹, ¹University of Pennsylvania, ²University of Jena

Topic Area: THINKING: Other

B127 Facilitating Creativity: Using Machine Learning EEG Classification to Provide Neurofeedback in a Divergent Thinking Task

Carl Stevens¹, Darya Zabelina¹, ¹University of Arkansas

Topic Area: THINKING: Problem solving

B128 Frontoparietal transcranial alternating stimulation (tACS) modulates visual analogical reasoning

Robert Cortes¹, Robert Morrison², Sydney Samoska², Sara Temelkova², Shana Ward², Adam Green¹, ¹Georgetown University, ²Loyola University Chicago

Topic Area: THINKING: Reasoning

B129 Symbolic and Non-Symbolic Fractions Relate to Different White Matter Tracts: A Cross-Sectional Diffusion MRI Tractography

Yunji Park¹, Douglas Dean III¹, John Binzak¹, Percival Matthews¹, Edward Hubbard¹, ¹University of Wisconsin-Madison

Topic Area: THINKING: Reasoning

Session C

Sunday, March 15, 1:00–3:00 pm, Exhibit Hall C

C1 Highway to the Danger Zone: Fatigue Assessment in a Flight Simulation

Gregory Gill¹, Chad Williams¹, Marielle Timmins¹, Olave E. Krigolson¹, ¹University of Victoria

Topic Area: ATTENTION: Auditory

C2 Musical rhythm training improves temporal attention and working memory in aging

Theodore Zanto¹, Vinith Johnson¹, Avery Ostrand¹, Tiffany Ford², Adam Gazzaley¹, ¹University of California San Francisco, ²University of California Berkeley

Topic Area: ATTENTION: Development & aging

C3 Electrophysiological modulation of peripersonal space in the presence of threatening faces

Julia Fellrath¹, Silvia Serino¹, Giulia Ellena¹, Petr Grivaz¹, Andrea Serino¹, ¹MySpaceLab

Topic Area: ATTENTION: Multisensory

C4 Rapid electrophysiological activations within anterior insula anticipate spontaneous pupil dilations

Aaron Kucyi¹, Josef Parvizi², ¹Northeastern University, ²Stanford University

Topic Area: ATTENTION: Nonspatial

C5 Targeting Neural Correlates of State- and Trait-Boredom

Ofir Yakobi¹, James Danckert¹, ¹University of Waterloo

Topic Area: ATTENTION: Other

C6 Two dominant brain states reflect optimal and suboptimal attention

Ayumu Yamashita¹, David Rothlein¹, Aaron Kucyi², Eve Valera³, Michael Esterman⁴, ¹Boston University School of Medicine, ²Northeastern University, ³Harvard Medical School, ⁴VA Boston Healthcare System

Topic Area: ATTENTION: Other

C7 Global integration of intrinsic brain activity is related to attention and ADHD

Agnieszka Zuberer¹, Aaron Kucyi², Eve Valera³, Michael Esterman¹, ¹Boston University, ²Stanford, ³Harvard Medical School

Topic Area: ATTENTION: Other

C8 Gamma band activity acts as a trigger for long-range apparent motion. Towards an integrative theory of apparent motion

Yasuhiro Sakamoto¹, Hideyuki Hoshi¹, Yoshihito Shigihara², Winfried Menninghaus¹, David Poeppel^{3, 4}, ¹Max Planck Institute for Empirical

Aesthetics, ²Hokuto Hospital, ³MPI for Empirical Aesthetics, ⁴New York University

Topic Area: ATTENTION: Spatial

C9 Inhibitory rTMS over the right parietal cortex modulates functional connectivity

Selene Schintu¹, Catherine A. Cunningham¹, Michael Freedberg¹, Stephen J. Gotts², Sarah Shomstein³, Eric M. Wassermann¹, ¹NINDS – NIH, ²NIMH – NIH, ³George Washington University

Topic Area: ATTENTION: Spatial

C10 Anatomical correlates of line-bisection performance: what can be learnt from a game theoretical analysis?

Monica Toba^{1,2}, Melissa Zavaglia³, Caroline Malherbe³, Tristan Moreau¹, Federica Rastelli¹, Anna Kaglik¹, Romain Valabregue¹, Pascale Pradat⁴, Claus Hilgetag³, Antoni Valero-Cabré¹, ¹Brain and Spine Institute, ICM, ²UPJV Amiens, ³Institute of Computational Neuroscience, UKE, ⁴APHP Paris

Topic Area: ATTENTION: Spatial

C11 Age differences in vmPFC functional connectivity during the processing of socioemotional information

Ryan T. Daley¹, Holly J. Bowen², Eric C. Fields^{1,3}, Katelyn R. Parisi¹, Angela Gutches³, Elizabeth A. Kensinger¹, ¹Boston College, ²Southern Methodist University, ³Brandeis University

Topic Area: EMOTION & SOCIAL: Development & aging

C12 Impact of persistent depression on telomere length, cognitive decline and white matter alteration in aging adult

Hyeon Min Ahn¹, Regina Ey Kim¹, Sorul Kim¹, Inkyung Baik², Chol Shin¹, ¹Korea university, ²Kookmin university

Topic Area: EMOTION & SOCIAL: Development & aging

C13 Characterizing cortical responses to faces and scenes in infant ventral temporal cortex.

Heather L Kosakowski¹, Michael Cohen², Lyneé Alvez³, Atsushi Takahashi¹, Nancy Kanwisher¹, Rebecca Saxe¹, ¹MIT, ²Amherst College, ³University of Denver

Topic Area: EMOTION & SOCIAL: Development & aging

C14 Theory of Mind Task-induced Connectivity is Associated with Social Connectedness in Older Adults

Seongjae Park¹, Seyul Kwak¹, Hairin Kim¹, Naeun Oh¹, Jeanyung Chey¹, ¹Seoul National University

Topic Area: EMOTION & SOCIAL: Development & aging

C15 Assessing the tradeoff between ecological validity and EEG signal quality in an aesthetic rating task

Dominik Welke¹, Edward A. Vessel¹, ¹Max-Planck-Institute for Empirical Aesthetics

Topic Area: EMOTION & SOCIAL: Emotional responding

C16 Associations between Risky Drinking, Suicidality and Network Activation During Emotional Response Inhibition

Julia Cohen-Gilbert^{1,2}, Anna Seraikas², Eleanor Schuttenberg², Emily Oot^{1,2}, Jennifer Sneider^{1,2}, Lisa Nickerson^{1,2}, Marisa Silveri^{1,2}, ¹McLean Hospital, ²Harvard Medical School

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

C17 Adults vs. neonates: Differentiation of functional connectivity between amygdala subnuclei and occipitotemporal cortex

Heather Hansen¹, Jin Li¹, Zeynep Saygin¹, ¹The Ohio State University

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

C18 How Depressive Symptomology Affects Emotional Regulation Across the LifespanTaylor James¹, Brittany Corbett¹, Audrey Duarte¹, ¹Georgia Institute of Technology

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

C19 The neural correlates of aversive to appetitive counterconditioningNicole E. Keller¹, Emily Leiker¹, Mason McClay¹, Augustin C. Hennings¹, Jarrod A. Lewis-Peacock¹, Joseph E. Dunsmoor¹, ¹University of Texas at Austin

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

C20 mental workload even if learning efficiency is enhancedTsukasa Kimura¹, Noriko Takemura², Yuta Nakashima², Hirokazu Kobori³, Hajime Nagahara², Masayuki Numao¹, Kazumitsu Shinohara⁴, ¹ISIR, Osaka University, ²Institute for Dataability Science, Osaka University, ³Daikin Industries, Ltd., ⁴Graduate School of Human Sciences, Osaka University

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

C21 Using optical flow to capture movement in response to emotional stimuli among people with schizophrenia: a pilot studyLisa Lin¹, Michelle Matvey², Ellen Bradley², Chenwei Wu¹, David Dodell-Feder¹, Josh Woolley², ¹University of Rochester, ²San Francisco VA Medical Center

Topic Area: EMOTION & SOCIAL: Other

C22 Neural correlates of perspective taking in youthsMin Liu¹, Tai-Li Chou¹, ¹National Taiwan University

Topic Area: EMOTION & SOCIAL: Other

C23 Sexual objectification beyond the metaphor: an EEG investigationCarlotta Cogoni¹, Jeroen Vaes², Giulia Cristoforetti³, Daniela ruzzante², Veronica mazza², ¹IBEB (Istituto de Biofísica e Engenharia Biomédica), ²University of Trento, ³University of Ghent

Topic Area: EMOTION & SOCIAL: Person perception

C24 Neural correlates of affective and non-affective social interactions processing from point-light displaysLukasz Okruszek¹, Justyna Gula², ¹Institute of Psychology, Polish Academy of Sciences, ²Goldsmiths, University of London

Topic Area: EMOTION & SOCIAL: Person perception

C25 EEG frequency-tagging of apparent biological motion dissociates action and body perceptionGuido Ors¹, Emiel Cracco², Goedele van Belle³, Lisa Quenon³, Patrick Haggard³, Bruno Rossion⁵, ¹Goldsmiths, University of London, ²Ghent University, ³UCL, ⁵Université de Lorraine, CNRS, CRAN

Topic Area: EMOTION & SOCIAL: Person perception

C26 Neuromodulation of the Theory of Mind Neural Network with Real-Time fMRI NeurofeedbackAbhishek Saxena¹, Emily Dudek¹, J. Steven Lamberti¹, David Dodell-Feder¹, ¹University of Rochester

Topic Area: EMOTION & SOCIAL: Person perception

C27 The Power of the Personal NarrativeBrandy Tieman¹, Bunderson Madison², Margaret Deane¹, Caroline Martin¹, Clara Davis¹, Andrew Dyar¹, Hannah Peterson¹, Mary Cecil¹, Gracen Kelly¹, Abigail Rapuano¹, Allyson Salazar¹, ¹Sewanee: The University of the South, ¹Yale University

Topic Area: EMOTION & SOCIAL: Self perception

C28 The Developmental Trajectory of the Domain General CortexAthena Howell¹, Zeynep Saygin¹, David Osher¹, Jin Li¹, ¹The Ohio State University

Topic Area: EXECUTIVE PROCESSES: Development & aging

C29 ERP P3 during visual 3-stimulus oddball task and intelligence at school aged children: the Hokkaido StudyKeiko Yamazaki¹, Atsuko Araki¹, Chihiro Miyashita¹, Sachiko Itoh¹, Sonomi Nakajima², Reiko Kishi¹, ¹Hokkaido University, ²Sapporo Medical University

Topic Area: EXECUTIVE PROCESSES: Development & aging

C30 The striatal feedback response reflects goal updatingIan Ballard¹, Mark D'Esposito¹, ¹University of California, Berkeley

EXECUTIVE PROCESSES: Goal maintenance & switching

C31 Using a Memory Game to Enhance Frontal Activation: An fNIRS StudyBhoomika Nikam¹, Meagan Smith¹, Sammy Perone², Aaron Buss¹, ¹University of Tennessee, Knoxville, ²Washington State University

Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

C32 Neural dynamics during dimensional label learning predicts dimensional attention performance in early childhoodHollis Ratliff¹, Aaron Buss¹, ¹University of Tennessee, Knoxville

EXECUTIVE PROCESSES: Goal maintenance & switching

C33 Effects of post-error arousal on cognitive control: Adaptive or maladaptive?Rebecca Compton¹, Marc Jaskir¹, Jianing Mu¹, ¹Haverford College

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

C34 A cautionary tale about the importance of taking individual differences into account when examining whether tDCS can enhanceSydney Darling¹, Keisha Alexander¹, Hannah Morrow¹, Eiling Yee¹, ¹University of Connecticut

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

C35 The Effects of Bilingualism on Resistance to Proactive Interference and Brain Integrity Across the Adult LifespanAlessandra Macbeth¹, Eve Higby², Natsuki Atagi³, Christine Chiarello¹, ¹University of California, Riverside, ²California State University, East Bay, ³California State University, Fullerton

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

C36 Best of both worlds: Integrating EEG and fMRI in the study of inhibitionM. Fiona Molloy¹, Brandon Turner¹, ¹The Ohio State University

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

C37 Activity Flow over Intrinsic Networks Explains Stimulation-Evoked ActivationsJING JIANG¹, Manjari Narayan¹, Yu Zhang¹, Wei Wu¹, Colleen Mills-Finnerty¹, Carena Cornelissen¹, Rachael Wright¹, Michael Cole², Amit Etkin¹, ¹Stanford University, ²Rutgers University

Topic Area: EXECUTIVE PROCESSES: Other

C38 How does Feedback Processing Affect Learning in People with Traumatic Brain Injury?Corina Mangione¹, Gwendolyn Meredith¹, Jessica Kenworthy¹, Yael Arbel¹, Lauryn Zipse¹, ¹MGH Institute of Health Professions

Topic Area: EXECUTIVE PROCESSES: Other

C39 Memory and Metamemory Deficits in First-Episode Schizophrenia: Effects of Psychosis on Value-Directed Remembering

Tara Patterson¹, Alan Castel¹, Barbara Knowlton¹, Kenneth Subotnik¹, Keith Nuechterlein¹, ¹University of California, Los Angeles
Topic Area: EXECUTIVE PROCESSES: Other

C40 Prefrontal tuning in mnemonic chunking in a spatial self-ordered search task

Feng-Kuei Chiang¹, Erin Rich¹, ¹Icahn School of Medicine at Mount Sinai
Topic Area: EXECUTIVE PROCESSES: Working memory

C41 Using fNIRS to Probe the Effects of Response Type in a Visual Working Memory Task

Rachel Eddings¹, Aaron Buss¹, ¹University of Tennessee
Topic Area: EXECUTIVE PROCESSES: Working memory

C42 Losing money and memory: The effect of loss incentives on working memory in young and older adults

Hyesue Jang¹, Richard Lewis¹, Cindy Lustig¹, ¹University of Michigan
Topic Area: EXECUTIVE PROCESSES: Working memory

C43 Cerebellar Contributions to Higher Order Cognition

Ted Maldonado¹, Jessica Bernard¹, ¹Texas A&M University
Topic Area: EXECUTIVE PROCESSES: Working memory

C44 Measuring working memory in visual, auditory, and tactile sensory modalities

Ningcong Tong¹, Abigail Noyce¹, Vaibhav Tripathi¹, Sean Tobyn², Michael Lindsay¹, Glenn Thayer¹, Daniel Gastler¹, Heitor Mourato¹, Eric Hazen¹, David Somers¹, ¹Boston University, ²Charles River Analytics
Topic Area: EXECUTIVE PROCESSES: Working memory

C45 Training attractor dynamics in human visual working memory

Qing Yu¹, Matthew Panichello², Bradley Postle¹, Timothy Buschman², ¹University of Wisconsin-Madison, ²Princeton University
Topic Area: EXECUTIVE PROCESSES: Working memory

C46 Age-related differences in the effects of autistic traits on processing a linguistic operator of interpersonal relation

Sachiko Kiyama¹, Shingo Tokimoto², Kanae Ito¹, Taiga Naoe¹, Min Wang¹, Qiong Ma¹, Takashi Ueno¹, Masatoshi Koizumi¹, ¹Tohoku University, ²Meiji University
Topic Area: LANGUAGE: Development & aging

C47 Inter- and intra-hemispheric white matter organization in relation to language skills in infancy

Jolijn Vanderauwera^{1, 2}, Jennifer Zuk², Ted Turesky², Ally Lee², Jade Dunstan², Nadine Gaab², ¹UCLouvain, ²Harvard University
Topic Area: LANGUAGE: Development & aging

C48 Phonological representations of their non-spoken language help Heritage speakers to learn new words: An ERP study

Beerelim Corona Dzul¹, Keila Nava-Báez¹, Eva Velásquez-Upegui¹, Haydée Carrasco-Ortiz¹, ¹Universidad Autónoma de Querétaro
Topic Area: LANGUAGE: Lexicon

C49 ERP evidence for flexibility in accessing representations associated with subject-verb agreement

Jane Aristia¹, Angèle Brunelliere¹, ¹Université de Lille
Topic Area: LANGUAGE: Other

C50 The neural bases of phonological acceptability judgements

David Gow¹, Enes Avcu¹, Olivia Newman¹, Seppo P. Ahlfors², ¹Massachusetts General Hospital, ²Athinoula A. Martinos Center for Biomedical Imaging
Topic Area: LANGUAGE: Other

C51 The universal language network

Saima Malik-Moraleda¹, Dima Ayyash², Jeanne Gallée¹, Zach Mineroff², Olessia Jouravlev³, Evelina Fedorenko², ¹Harvard University, ²Massachusetts Institute of Technology, ³Carleton University
Topic Area: LANGUAGE: Other

C52 Effects of sleep-mediated memory consolidation on speech learning: evidence from Cantonese tones

Zhen Qin¹, Caicai Zhang¹, ¹The Hong Kong Polytechnic University
Topic Area: LANGUAGE: Other

C53 Acquisition context modulates affective perception of swear words

Katherine Sendek¹, Grit Herzmans¹, Stanley Donahoo², Valeria Pfeifer², Vicky Lai², ¹The College of Wooster, ²University of Arizona
Topic Area: LANGUAGE: Other

C54 The origin of the second language after-effect in bilingual language production: and ERP investigation.

Agata Wolna¹, Jakub Szwedczyk², Patrycja Ka'ama'a¹, Jonas Walther¹, Zofia Wodniecka¹, ¹Jagiellonian University, ²University of Illinois, Urbana Champaign
Topic Area: LANGUAGE: Other

C55 Dynamic connectivity of neural networks supporting incremental speech interpretation

Yuxing Fang¹, Bingjiang Lyu¹, Benedict Vassileiou¹, Kamen Tsvetanov¹, Lorraine Tyler¹, William Marslen-Wilson¹, ¹University of Cambridge
Topic Area: LANGUAGE: Semantic

C56 Parafoveal Semantic Integration Eliminates the N400 of Foveal Semantic Violation

Chuchu Li¹, Katherine Midgley², Phillip Holcomb², ¹University of California, San Diego, ²San Diego State University
Topic Area: LANGUAGE: Semantic

C57 Preview effect of semantic integration in Chinese Sentence Reading

Nan Li¹, Suiping Wang¹, Hsuan-Chih Chen², ¹South China Normal University, ²The Chinese University of Hong Kong
Topic Area: LANGUAGE: Semantic

C58 A systematic comparison between spatial similarity and evoked responses in EEG and MEG during language comprehension

Lin Wang¹, Gina Kuperberg², ¹Harvard Medical School, ²Tufts University
Topic Area: LANGUAGE: Semantic

C59 Inhibitory TMS to the left inferior frontal gyrus modulates lexical selection in a context dependent manner

Jared Zimmerman¹, Apoorva Kelkar¹, Denise Harvey¹, John Medaglia², Roy Hamilton¹, ¹University of Pennsylvania, ²Drexel University
Topic Area: LANGUAGE: Semantic

C60 Shared interpretation of an auditory narrative increases BOLD-synchrony between subjects

Maria Hakonen¹, Arsi Ikäheimonen¹, Annika Hulten¹, Janne Kauttonen², Miika Koskinen³, Fa-Hsuan Lin⁴, Anastasia Lowe¹, Mikko Sams¹, Iiro Jääskeläinen⁵, ¹Aalto University, ²Haaga-Helia University, ³Helsinki University, ⁴University of Toronto, ⁵National Research University Higher School of Economics
Topic Area: LANGUAGE: Semantic

C61 Robust Neural Adaptation to Syntactic Structure

Jeanne Gallée¹, Hope Kean², Evelina Fedorenko², ¹Harvard University, ²Massachusetts Institute of Technology

Topic Area: LANGUAGE: Syntax

C62 Structural Connectivity and Memory Systems Across the Lifespan: Is There a Common Network?

Susan L. Benear¹, Zachary Heffernan¹, Linda Hoffman¹, Ingrid R. Olson¹, Nora S. Newcombe¹, ¹Temple University

Topic Area: LONG-TERM MEMORY: Development & aging

C63 The Effect of Hippocampal Integrity and Volume on Recall Memory in Healthy Aging

Kirolos Ibrahim¹, Anu Venkatesh¹, Ilana Bennett¹, ¹University of California, Riverside

Topic Area: LONG-TERM MEMORY: Development & aging

C64 Stronger structural connectivity in the default mode network is associated with youthful memory in superaging

Jiahe Zhang¹, Lianne Scholtens², Martijn van den Heuvel², Brad Dickerson³, Lisa Barrett¹, ¹Northeastern University, ²Vrije Universiteit Amsterdam, ³Massachusetts General Hospital

Topic Area: LONG-TERM MEMORY: Development & aging

C65 Theta Networks of Memory in Traumatic Brain Injury

Richard Adamovich-Zeitlin¹, Paul Wanda¹, Ethan Solomon^{1,2}, Tung Phan¹, Brad Lega³, Kan Ding³, Ramon Diaz-Arrastia¹, Michael Kahana¹, ¹University of Pennsylvania, ²Perelman School of Medicine, ³University of Texas Southwestern

Topic Area: LONG-TERM MEMORY: Episodic

C66 REM sleep and inferior temporal lobe recapitulation support positive memory retrieval

Ryan Bottary¹, Sarah Kark², Ryan Daley¹, Jessica Payne³, Elizabeth Kensinger¹, ¹Boston College, ²University of California Irvine, ³University of Notre Dame

Topic Area: LONG-TERM MEMORY: Episodic

C67 Evaluating the subsequent memory effect as predictive of memory

Sucheta Chakravarty¹, Yvonne Chen², Jeremy Caplan¹, ¹University of Alberta, ²Baylor College of Medicine

Topic Area: LONG-TERM MEMORY: Episodic

C68 The Retrieval of Context Variability in Episodic Memory: An ERP Study

SHIH-KUEN CHENG¹, ¹National Central University

Topic Area: LONG-TERM MEMORY: Episodic

C69 Repulsion of hippocampal representations is time-locked to resolution of memory interference

Wanjia Guo¹, Robert Molitor¹, Serra Favila², Brice Kuhl¹, ¹University of Oregon, ²New York University

Topic Area: LONG-TERM MEMORY: Episodic

C70 Reactivation and updating of face memories

Robin Hellerstedt¹, Matthew Plummer¹, Stuart Gibson¹, Jon Simons², Zara Bergström¹, ¹University of Kent, ²University of Cambridge

Topic Area: LONG-TERM MEMORY: Episodic

C71 Inhibition of related items in long-term memory specificity depends on confidence

Brittany Jeye¹, Scott Slotnick², ¹Worcester State University, ²Boston College

Topic Area: LONG-TERM MEMORY: Episodic

C72 EEG biomarkers of immediate and delayed verbal recall

Connor Keane¹, Brandon Katerman¹, Michael Kahana¹, Li Yuxuan², ²Stanford University, ¹University of Pennsylvania

Topic Area: LONG-TERM MEMORY: Episodic

C73 Image memorability is predicted by activity across stages of convolutional neural networks and the human ventral stream

Griffin E. Koch¹, Essang Akpan¹, Marc N. Coutanche¹, ¹University of Pittsburgh

Topic Area: LONG-TERM MEMORY: Episodic

C74 The role of reward in encoding details of complex episodic memories for events

Azara Lalla¹, Kevin Da Silva Castanheira¹, A. Ross Otto¹, Signy Sheldon¹, ¹McGill University

Topic Area: LONG-TERM MEMORY: Episodic

C75 Oscillatory Mechanisms for Hippocampal Memory Encoding Tested in Humans

Sarah Lurie¹, Joel Voss¹, ¹Northwestern University

Topic Area: LONG-TERM MEMORY: Episodic

C76 Do metacognitive judgments impact environment learning?

Lauren Mason¹, Holly Taylor¹, Ayanna Thomas¹, Tad Brunyé², ¹Tufts University, ²Center for Applied Brain & Cognitive Sciences

Topic Area: LONG-TERM MEMORY: Episodic

C77 Transfer of negative emotion in episodic memory

Daniela J. Palombo¹, Leor Elizur¹, Christian L. Esposito¹, Christopher R. Madan², ¹University of British Columbia, ²University of Nottingham

Topic Area: LONG-TERM MEMORY: Episodic

C78 The role of autobiographical memory processes in planning and problem solving

Sarah Peters¹, Signy Sheldon¹, ¹McGill University

Topic Area: LONG-TERM MEMORY: Episodic

C79 MR elastography of hippocampal subfield viscoelasticity is related to relational memory outcomes across the lifespan

Hillary Schwab¹, Peyton L Delgorio², Lucy V Hiscox², Ana M Daugherty³, Matthew DM McGarry⁴, Neal J Cohen¹, Curtis L Johnson², ¹University of Illinois Urbana-Champaign, ²University of Delaware, ³Wayne State University, ⁴Dartmouth College

Topic Area: LONG-TERM MEMORY: Episodic

C80 Sleep-dependent consolidation enhances episodic memory for a real-life event

Stephanie Simpson^{1, 2}, Nick Diamond³, Laryssa Levesque², Yushu Wang², Catherine Le², Brian Levine², ¹University of Toronto, ²Rotman Research Institute at Baycrest Health Sciences Centre, ³University of Pennsylvania

Topic Area: LONG-TERM MEMORY: Episodic

C81 Medial Temporal Network Representations of Conceptual Information During Naturalistic Events

Alyssa Sinclair¹, Jia-Hou Poh¹, R. Alison Adcock¹, Morgan Barense², ¹Duke University, ²University of Toronto

Topic Area: LONG-TERM MEMORY: Episodic

C82 Functional Connectivity Differs across Cultures

Wanbing Zhang, Xin Zhang¹, Jessica Andrews-Hanna², Angela Gutches¹, ¹Brandeis University, ²University of Arizona

Topic Area: LONG-TERM MEMORY: Episodic

C83 The effects of a moderate dose of alcohol on prospective memory: A pilot study

Xiao Liu¹, Marie Brown², Emily Thomas², Sunjeev Kamboj², Valerie H. Curran², ¹University of Southern California, ²University College London (UCL)
Topic Area: LONG-TERM MEMORY: Other

C84 Matisse or Degas? Using paintings to investigate the relevance of sleep in memory for specific details vs generalization

Sarah (Sadie) J. Witkowski¹, Sharon M. Noh², Victoria Lee¹, Alison R. Preston², Ken A. Paller¹, ¹Northwestern University, ²University of Texas at Austin
Topic Area: LONG-TERM MEMORY: Other

C85 Integrating MVPA and Connectivity in a Multiple Constraint Network to Bootstrap Brain Models

Chris McNorgan¹, Greg Smith¹, Erica Edwards¹, Jennifer Mosley¹, ¹University at Buffalo
Topic Area: LONG-TERM MEMORY: Semantic

C86 Language learning can withstand one night of total sleep deprivation

Jakke Tamminen¹, Chloe Newbury¹, Rebecca Crowley¹, Kathleen Rastle¹, ¹Royal Holloway, University of London
Topic Area: LONG-TERM MEMORY: Semantic

C87 Observational and Rule-based Artificial Grammar Learning in Individuals with Aphasia

Carla Tierney-Hendricks¹, Sofia Vallila-Rohter¹, Natasha De Novi¹, ¹MGH Institute of Health Professions
Topic Area: LONG-TERM MEMORY: Episodic

C88 Correspondence between Electroencephalography Analysis Techniques in Early Childhood: Evidence from a Passive Oddball Task

Caroline Hoyniak¹, Rebecca Hailperin-Lausch², Lauren Wade², Elizabeth daSilva^{2,3}, John Bates², Bennett Bertenthal², ¹Washington University School of Medicine, ²Indiana University, ³Purdue University, Columbus
Topic Area: METHODS: Electrophysiology

C89 A Gaussian process model of human electrocorticographic data

Tudor Muntianu¹, Lucy Owen¹, Andrew Heusser¹, Patrick Daly², Katherine Scangos², Jeremy Manning¹, ¹Dartmouth College, ²UCSF
Topic Area: METHODS: Electrophysiology

C90 Gaussian Process Joint Models for Estimating Latent Dynamics of Brain and Behavior

Giwon Bahg¹, Daniel Evans¹, Matthew Galdo¹, Brandon Turner¹, ¹The Ohio State University
Topic Area: METHODS: Neuroimaging

C91 Military Blast Exposure and PTSD are Associated with Aging White Matter Integrity and Functioning

Emma Brown¹, Anna Etchin¹, William Milberg¹, Regina McGlinchey¹, David Salat¹, ¹VA Boston Healthcare System
Topic Area: METHODS: Neuroimaging

C92 Cross-site multiband fMRI signal validation and calibration for cross-cultural neurocognitive studies

Chi-Chuan Chen¹, Chun-Yih Lee¹, Ross Mair², Angela Gutchess³, Joshua Oon Soo Goh¹, ¹National Taiwan University, ²Harvard University, ³Brandeis University
Topic Area: METHODS: Neuroimaging

C93 Predictable brain: Using machine learning to predict brain signals of subjects during social interaction

Candida Da Silva Ferreira Barreto¹, Guilherme Bruneri³, José Guilherme Oliveira Brockington¹, Joao Sato¹, ¹Federal University of ABC, ³Federal University of Sao Paulo,
Topic Area: METHODS: Neuroimaging

C94 Reconstructing Mechanistic Models of Cognition via Simultaneous MINDy Modeling for Resting-State and Task fMRI

Matthew Singh¹, Anxu Wang¹, ShiNung Ching¹, Todd Braver¹, ¹Washington University in St. Louis
Topic Area: METHODS: Neuroimaging

C95 Investigating the intensity-dependent modulatory effect of TMS on functional connectivity during motion perception

Lifu Deng¹, Olga Lucia Gamboa Arana¹, Moritz Dannhauer¹, Anshu Jonnalagadda¹, Rena Hamdan¹, Fang Wang¹, Marc Sommer¹, Angel Peterchev¹, Greg Appelbaum¹, Roberto Cabeza¹, Simon W Davis¹, ¹Duke University
Topic Area: METHODS: Other

C96 Direct electrical stimulation evidence for a dorsal laryngeal motor cortex area

Rauf Belkhir¹, Frank Garcea², Ben Chernoff¹, Max Sims¹, Sam Haber³, Eduard Navarrete⁴, David Paul³, Susan Smith³, Webster Pilcher³, Brad Mahon¹, ¹Carnegie Mellon University, ²Moss Rehabilitation Center, ³University of Rochester Medical Center, ⁴University of Padova
Topic Area: NEUROANATOMY

C97 Cerebellar Dentate Connectivity Across Adulthood: A Large-Scale Resting State Functional Connectivity Investigation

Jessica Bernard¹, Hannah Ballard¹, Bryan Jackson¹, ¹Texas A&M University
Topic Area: NEUROANATOMY

C98 Oscillation-based connectivity is dominated by an intrinsic spatial organization, not mental state or frequency

Parham Mostame¹, abbas bbajani-feremi², sepideh sadaghiani¹, ¹University of Illinois at Urbana Champaign, ²University of Tennessee
Topic Area: OTHER

C99 Educational experiences connect symbolic fractions to parietofrontal nonsymbolic ratio processing systems

Isabella Starling Alves¹, Yunji Park¹, Priya Kalra¹, John Binzak¹, Percival, Matthews¹ Edward Hubbard¹, ¹University of Wisconsin-Madison
Topic Area: OTHER

C100 Frequency of resting-state BOLD signal in 2-month-old Bangladeshi infants growing up in poverty

Ted Turesky¹, Nadine Gaab^{1,2}, Charles Nelson^{1,2}, Shahria Hafiz Kakon³, Nazrul Islam⁴, ¹Boston Childrens Hospital, ²Harvard Medical School, ³The International Centre for Diarrhoeal Disease Research, ⁴National Institute of Neurosciences & Hospital, Dhaka, Bangl
Topic Area: OTHER

C101 Transitional knowledge within counting sequences is processed across multiple levels of cortical hierarchy

Eli Zaleznik¹, Joonkoo Park¹, ¹University of Massachusetts Amherst
Topic Area: OTHER

C102 Mind the gap: Differences in sensory memory throughout development in individuals with Cystinosis

Alaina S. Berruti¹, Ana A. Francisco¹, Douwe J. Horsthuis¹, John J. Foxe^{1,2}, Sophie Molholm^{1,2}, ¹Albert Einstein College of Medicine, ²University of Rochester
Topic Area: PERCEPTION & ACTION: Audition

C103 Do you hear that? Individual Differences in Alpha-Frequency Connectivity Predict Hyperacusis in Anxiety

Jessica Simon¹, Nika Kartvelishvili¹, Kevin Clancy¹, Wen Li¹, ¹Florida State University

Topic Area: PERCEPTION & ACTION: Audition

C104 Non-specific impact of Transcranial Magnetic Stimulation sound patterns on cortical oscillations and visual detection

Chloé Stengel¹, Adrien Martel¹, Julian Amengual², Antoni Valero-Cabre¹, ¹Institut du Cerveau de la Moelle épinière (ICM), ²Institut des Sciences Cognitives Marc Jeannerod,

Topic Area: PERCEPTION & ACTION: Audition

C105 Effects of musical training on processing speech envelope and temporal fine structure

Lidongsheng Xing¹, Yi Du¹, ¹Institute of Psychology, Chinese Academy of Sciences

Topic Area: PERCEPTION & ACTION: Audition

C106 An EEG Study Testing the Role of Infants' Motor Experience in the Development of Action Understanding

Bennett Bertenthal¹, Rebecca Hailperin-Lausch¹, Lauren Wade¹, ¹Indiana University

Topic Area: PERCEPTION & ACTION: Development & aging

C107 Color and Intensity of flickering light to enhance gamma entrainment and networking

Kanghee Lee^{1,2}, Yeseung Park¹, Seung Wan Suh^{1,2}, Ji Won Han^{1,2}, Jaeho Lee³, Jaehyeok Park³, Seunghyup Yoo³, Ki Woong Kim^{1,2}, ¹Seoul National University, ²Bundang Hospital, ³School of Electrical Engineering, KAIST

Topic Area: PERCEPTION & ACTION: Development & aging

C108 Positive expectation improves perception of mental and physical fatigue in a sequence learning task

Mirta Fiorio¹, Mehran Emadi Andani¹, Paola Cesari¹, Bernardo Villa-Sanchez¹, ¹University of Verona

Topic Area: PERCEPTION & ACTION: Motor control

C109 Prior Exposure Enhances Cortical Entrainment to Unheard Speech during Silent Lip-reading

Zhewei Cao¹, Aisling O'Sullivan², Lauren Szymula¹, Aaron Nidiffer¹, Edmund Lalor¹, ¹University of Rochester, ²Trinity College Dublin

Topic Area: PERCEPTION & ACTION: Multisensory

C110 Assessing and Predicting Efficacy of Dance Intervention for Parkinson's Disease

Anna Krottinger^{1, 2}, Psyche Loui^{1, 3}, ¹Wesleyan University, ²Harvard Medical School, ³Northeastern University

Topic Area: PERCEPTION & ACTION: Multisensory

C111 The relationship between sign language fluency and mental rotation: An EEG study

Emily Kubicek¹, David Thornton¹, Loma Quandt¹, ¹Gallaudet University

Topic Area: PERCEPTION & ACTION: Other

C112 Formation of face-related predictions: An interplay of prestimulus ?? enhancement and peristimulus N170 diminution

Marlen A. Roehe¹, Daniel S. Kluger¹, Svea C. Y. Schroeder¹, Lena M. Schliephake¹, Jens B?lte¹, Axel Kohler², Ricarda I. Schubotz¹, ¹University of Muenster, ²University of Frankfurt

Topic Area: PERCEPTION & ACTION: Other

C113 Male Observers use Facial Sexual Dimorphism to make Physical Dominance Assessments Following Brief Exposure

Graham Albert¹, Erika Wells¹, Steven A. Arnocky², Changhong Liu³, Carolyn R., Hodges-Simeon¹, ¹Boston University, ²Nipissing University, ³Bournemouth University

Topic Area: PERCEPTION & ACTION: Vision

C114 MRI structural analysis of cortical thickness and tissue integrity in developmental prosopagnosia

Joseph DeGutis^{1,2}, Jirapat Likitlersuang^{1,2}, David Salat¹, ¹VA Boston Healthcare System, ²Harvard Medical School

Topic Area: PERCEPTION & ACTION: Vision

C115 Action Associations Bias Perception

Dick Dubbelde¹, Sarah Shomstein¹, ¹The George Washington University

Topic Area: PERCEPTION & ACTION: Vision

C116 Representation of visual information for rapid motor responses

Rajendran Pottayil¹, Marjan Persuh¹, ¹Borough of Manhattan Community College

Topic Area: PERCEPTION & ACTION: Vision

C117 A brief period of postnatal visual deprivation permanently alters visual motion processing in early visual regions

Mohamed Rezk¹, Stefania Mattioni¹, Junghyun Nam², Zhong-Xu Liu³, Xiaoqing Gao⁴, Terri Lewis⁵, Daphne Maurer⁵, Olivier Collignon¹, ¹Université Catholique de Louvain (UCLouvain), ²University of Toronto, ³University of Michigan-Dearborn, ⁴Zhejiang University, ⁵McMaster University

Topic Area: PERCEPTION & ACTION: Vision

C118 Fast periodic visual stimulation marker of face identity impairment in developmental prosopagnosia

Kevin Spencer¹, Elyana Saad¹, Maruti Mishra¹, Joseph DeGutis¹, ¹Harvard Medical School

Topic Area: PERCEPTION & ACTION: Vision

C119 Putting visual object recognition in context

Mengmi Zhang^{1, 2}, Claire Tseng², Gabriel Kreiman², ¹Boston children's hospital, ²Harvard College

Topic Area: PERCEPTION & ACTION: Vision

C120 Catching the Visual System in Action: A Modified Event-Related Potential Paradigm for Dynamic Stimuli

Shan Zhang¹, Ayse P. Saygin¹, ¹University of California, San Diego

Topic Area: PERCEPTION & ACTION: Vision

C121 Clarifying the Role of the Medial Prefrontal Cortex During Metacognition: Revelations from a 'Maybe' Judgment

Hillary Erwin¹, Tasnuva Enam¹, Deborah Eakin², Ian McDonough¹, ¹The University of Alabama, ²Mississippi State University

Topic Area: THINKING: Decision making

C122 Differential Striatal Responses During Moral and Economic Value-Based Decision-Making

Yu-Hsuan Kao¹, Chi-Chuan Chen¹, Yu-Shiang Su¹, Chien-Te Wu¹, Joshua Oon Soo Goh¹, ¹National Taiwan University

Topic Area: THINKING: Decision making

C123 Classifying individuals into 'info types' based on information-seeking motives

Christopher Kelly¹, Tali Sharot¹, ¹UCL

Topic Area: THINKING: Decision making

C124 Disentangling the influences of positive and negative incentives on cognitive effort

Xiamin Leng¹, Debbie Yee¹, Amitai Shenhav¹, ¹Brown University
Topic Area: THINKING: Decision making

C125 Navigational Agency Modulates Neural Representations of Spatial Environments

Yi-Chaung Lin¹, Ya-Ting Chang¹, Charlotte Maschke², Joshua Oon Soo Goh¹,
¹National Taiwan University, ²Technical University Dresden
Topic Area: THINKING: Decision making

C126 The Effect of Phasic Arousal on Risky Choice in Younger and Older Adults

Margot Sullivan¹, Ringo Huang², Joseph Rovetti¹, Erika Sparrow¹, Julia Spaniol¹,
¹Ryerson University, ²Davis School of Gerontology, USC
Topic Area: THINKING: Decision making

C127 Understanding brain pattern complexity and interactivity in naturalistic processing

Lucy L. Owen¹, Jeremy Manning¹, ¹Dartmouth College
Topic Area: THINKING: Other

C128 Computer code comprehension shares neural resources with formal logic and math

Yun-Fei Liu¹, Marina Bedny¹, Colin Wilson¹, ¹Johns Hopkins University
Topic Area: THINKING: Problem solving

C129 Neural Correlates Underlying Passive and Active Abstract Rule Inferencing

Wan-Rue Lin¹, Yu-Shiang Su², Joshua Oon Soo Goh¹, ¹National Taiwan University,
²Academia Sinica
Topic Area: THINKING: Reasoning

C130 Decoding Pre-trial Pupil Diameter from EEG dynamics in an Auditory Oddball Task

Blake L. Elliott¹, Deanna L. Strayer¹, Matthew K. Robison¹, Chris Blais¹,
Samuel M. McClure¹, Gene A. Brewer¹, ¹Arizona State University
Topic Area: ATTENTION: Auditory

Session D

Monday, March 16, 8:00–10:00 am, Exhibit Hall C

D1 Evoked responses to auditory vs. visual attentional cues in auditory spatial discrimination

Norbert Kopco^{1, 2}, Rene Sebens¹, ¹Safarik University, Kosice, ²Boston University
Topic Area: ATTENTION: Auditory

D2 Differential brain functional network topology disruptions in children with ADHD, ASD and ASD comorbid with ADHD

Shih-Jen weng¹, Xing Qian¹, Min Sung¹, Beatrice Rui Yi Loo², Juan Helen Zhou³,
¹Institute of Mental Health, Singapore, ²Duke-National University of Singapore Medical School,
³National University of Singapore
Topic Area: ATTENTION: Development & aging

D3 Disentangling top-down and bottom-up influences on blinks in the visual and auditory domain

Mareike Brych¹, Supriya Murali¹, Liyu Cao¹, Barbara Haendel¹, ¹University of Wuerzburg
Topic Area: ATTENTION: Multisensory

D4 Transcranial direct current stimulation improves sustained attention in breast cancer survivors

Alexandra M. Gaynor¹, Denise Pergolizzi², Yesne Alici³, Elizabeth Ryan³,
Katrzyzna McNeal³, Tim Ahles³, James Root³, ¹Memorial Sloan Kettering Cancer Center,
²Universitat Internacional de Catalunya, ³Memorial Sloan Kettering Cancer Center
Topic Area: ATTENTION: Nonspatial

D5 Simultaneous EEG-fMRI-tES reveals a visual-cortex-DMN system of sustained vigilance via alpha oscillations

Kevin Clancy¹, Melissa Meynadasy¹, Jessica Simon¹, Wen Li¹, ¹Florida State University
Topic Area: ATTENTION: Other

D6 Consumer-Based EEG Devices-Are They Mind-Wandering?

Shenyang Huang¹, Claire Simmons¹, William Krenzer¹, Nita Farahany¹, ¹Duke University
Topic Area: ATTENTION: Other

D7 Delineating the impact of mind wandering on event-based prospective memories with varying error-related consequences

Kristina Krasich¹, Eva Gjorgjeva¹, Samuel Murray¹, Felipe De Brigard¹, Marty G. Woldorff¹, ¹Duke University
Topic Area: ATTENTION: Other

D8 Individual Differences in Self-Reported Autistic Traits and the N2pc

Jane Couperus¹, Juniper Hollis², Jess Roy², Amy Lowe², Cathy Reed³, Cindy Bukach⁴,
¹Mt. Holyoke College, ²Hampshire College, ³Claremont McKenna College, ⁴University of Richmond
Topic Area: ATTENTION: Spatial

D9 Influence of reward on attention selectivity in Parkinson's disease

Matthew Pilgrim¹, Zhen Ou¹, Madeleine Sharp¹, ¹McGill University,
Topic Area: ATTENTION: Spatial

D10 Probing the properties of priority maps in visual working memory

Jiangang Shan¹, Bradley Postle¹, ¹University of Wisconsin, Madison
Topic Area: ATTENTION: Spatial

D11 An Event-Related Potential Study on Emotional Face Processing, Temperament, and Internalizing Traits in Three-Year-Olds

Finola Kane-Grade, Halie Olson¹, Wanze Xie², Michelle Bosquet Enlow^{2, 3}, Charles Nelson^{2, 3},
¹Massachusetts Institute of Technology, ²Boston Children's Hospital, ³Harvard Medical School
Topic Area: EMOTION & SOCIAL: Development & aging

D12 Fear of Negative Evaluation is associated with Connectivity Strength within Dorsomedial Default Mode Network

Ji Soo Lee¹, Hairin Kim¹, Seyul Kwak¹, Jeanyung Chey¹, ¹Seoul National University
Topic Area: EMOTION & SOCIAL: Development & aging

D13 The Link Between Sleep Quality and Stress Reactivity

Harlan Fichtenholtz¹, Emily Whitman¹, ¹Keene State College
Topic Area: EMOTION & SOCIAL: Emotional responding

D14 Enhanced Emotional Responses to Live Facial Expressions

Chun-Ting Hsu¹, Wataru Sato¹, Sakiko Yoshikawa¹, ¹Kyoto University
Topic Area: EMOTION & SOCIAL: Emotional responding

D15 Stress Alters Within-Network and Between-Network Connectivity for Default Mode Network - A Simultaneous EEG-fMRI StudyJeremy Andrzejewski¹, Kevin Clancy¹, Wen Li¹, ¹Florida State University

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

D16 Reinforcement Learning and Rock, Paper, ScissorsGregory Gagliardi¹, Chad Williams¹, Cam Hassall¹, Olave E. Krigolson¹, ¹University of Victoria

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

D17 Inferring meaning from variably intense emotion expressionsNatalie Holz¹, Pauline Larrouy-Maestri¹, David Poeppel^{1, 2}, ¹Max Planck Institute for Empirical Aesthetics, ²NYU

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

D18 Abnormal Attention and Memory Bias to Facial Expressions in Individuals with High Social AnxietySo-Yeon Kim¹, Jin-Ah Park¹, ¹DuSung Women's University

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

D19 Representation of Valence Across StudiesSvetlana Shinkareva¹, Chuanji Gao¹, Douglas Wedell¹, ¹University of South Carolina

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

D20 Impact of Perceived Stress on Brain Network Activation During Memory Retrieval in AdolescentsJennifer Snieder^{1,2}, Julia Cohen-Gilbert^{1,2}, Emily Oot^{1,3}, Anna Seraikas¹, Eleanor Schuttenberg¹, Derek Hamilton⁴, Sion Harris^{2,5}, Lisa Nickerson^{1,2}, Marisa Silveri^{1,2}, ¹McLean Hospital, ²Harvard Medical School, ³Boston University School of Medicine, ⁴University of New Mexico, ⁵Boston Children's Hospital

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

D21 Dynamic brain response to acute stress in children and adolescents: It's all about ageAndrea Pelletier-Baldelli¹, Alana Campbell¹, Rachel Corr¹, Sarah Glier¹, Josh Bizzell¹, Ayse Belger¹, ¹University of North Carolina at Chapel Hill

Topic Area: EMOTION & SOCIAL: Other

D22 Insula Connectivity during Narratives Predicts Willingness to Donate to a CauseAnthony Vaccaro¹, Brandon Scott¹, Sarah Gimbel¹, Antonio Damasio¹, Jonas Kaplan¹, ¹University of Southern California

Topic Area: EMOTION & SOCIAL: Other

D23 Empathy influences behavioral perceptions and eye movements in non-literal language processingGitte Joergensen¹, Lauren Benson², Pavitra Makarla¹, Hana Kim³, Kathrin Rothemich³, ¹University of Connecticut, ²Indiana University, ³East Carolina University

Topic Area: EMOTION & SOCIAL: Person perception

D24 The time course of processing authentic and fake emotional vocalisationsMaciej Kosilo^{1, 2}, Mónica Costa², César Lima², Ana Pinheiro², Diana Prata², ¹fciencias.id-Associação para a investigação e desenvolvimento, ²University of Lisbon

Topic Area: EMOTION & SOCIAL: Person perception

D25 Association between actions and personality traits for modeling of the social knowledgeMasahiro Okamoto¹, Satoshi Eifuku¹, ¹Fukushima Medical University

Topic Area: EMOTION & SOCIAL: Person perception

D26 Investigating the emergence of expression representations in a neural network trained to discriminate identitiesEmily Schwartz¹, Kathryn O'Neil², Stefano Anzellotti¹, ¹Boston College, ²University of Oxford

Topic Area: EMOTION & SOCIAL: Person perception

D27 Incidental encoding reveals the time-varying nature of post-error adjustments in cognitive processingEva Gjorgieva¹, Tobias Egner¹, ¹Duke University

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

D28 The Relation between Inhibitory Control and Neural Patterns of Reactivity to Craved ItemsMelissa Moss¹, Krista Destasio¹, Brendan Cullen¹, Elliot Berkman¹, ¹University of Oregon

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

D29 Frontoparietal Connectivity During Cognitive Control in Autism Spectrum DisorderRachel Wulff¹, Marie Krug¹, Andrew Gordon¹, Cory Coleman¹, Tara Niendam¹, Tyler Lesh¹, Cameron Carter¹, Marjorie Solomon¹, ¹University of California, Davis

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

D30 Examining Prefrontal Cortex Contributions to Cognitive Flexibility With Noninvasive Electric Brain StimulationKent Hubert¹, Maria Mukhanova¹, Evangelia G. Chryssikou¹, ¹Drexel University

Topic Area: EXECUTIVE PROCESSES: Other

D31 The Hidden Cost of a Cell Phone: Behavioral and Neural Correlates of Attention and Cognitive Control Related to SmartphoneJoshua Upshaw¹, Carl Stevens¹, Giorgio Ganis², Darya Zabelina¹, ¹University of Arkansas, ²University of Plymouth

Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

D32 Effects of Transcranial Direct Current Stimulation (tDCS) on Operator Vigilance: A Double-blind, Sham-controlled StudyE. Susan Duncan¹, Surani G. Nakkawita¹, Heather D. Lucas¹, Owen T. Carmichael², Marcio de Queiroz¹, ¹Louisiana State University, ²Pennington Biomedical Research Center

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

D33 Incidental encoding reveals the time-varying nature of post-error adjustments in cognitive processingEva Gjorgieva¹, Tobias Egner¹, ¹Duke University

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

D34 The Relation between Inhibitory Control and Neural Patterns of Reactivity to Craved ItemsMelissa Moss¹, Krista Destasio¹, Brendan Cullen¹, Elliot Berkman¹, ¹University of Oregon

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

D35 Frontoparietal Connectivity During Cognitive Control in Autism Spectrum DisorderRachel Wulff¹, Marie Krug¹, Andrew Gordon¹, Cory Coleman¹, Tara Niendam¹, Tyler Lesh¹, Cameron Carter¹, Marjorie Solomon¹, ¹University of California, Davis

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

D36 Examining Prefrontal Cortex Contributions to Cognitive Flexibility With Noninvasive Electric Brain Stimulation

Kent Hubert¹, Maria Mukhanova¹, Evangelia G. Chrysikou¹, ¹Drexel University
Topic Area: EXECUTIVE PROCESSES: Other

D37 Cerebello-Striatal Resting-State Network Efficiency and Cortical Network Coherence

T. Bryan Jackson¹, Jessica Bernard¹, ¹Texas A&M University
Topic Area: EXECUTIVE PROCESSES: Other

D38 Neurofunctional Indices of Executive Functioning in Autism Spectrum Disorder

Kaitlyn May¹, Rajesh Kana¹, ¹University of Alabama
Topic Area: EXECUTIVE PROCESSES: Other

D39 Dissociated neural representations of content and structure in auditory sequence memory

Ying Fan¹, Qiming Han¹, Simeng Guo¹, Huan Luo¹, ¹Peking University
Topic Area: EXECUTIVE PROCESSES: Working memory

D40 Frequent longitudinal sampling reveals learning-related changes in working memory substrates

Jacob Miller¹, Anastasia Kiyonaga¹, Arielle Tambini¹, Mark D'Esposito¹, ¹UC Berkeley
Topic Area: EXECUTIVE PROCESSES: Working memory

D41 An EEG study of the role of executive control in individual differences in working memory

Yuri G. Pavlov¹, ¹University of Tuebingen
Topic Area: EXECUTIVE PROCESSES: Working memory

D42 Events structure information accessibility less in children than adults

Jie Ren, Katherine Duncan¹, Amy Finn¹, ¹University of Toronto
Topic Area: EXECUTIVE PROCESSES: Working memory

D43 Effects of attentional prioritization on the representation of content and of context in visual working memory

Chunyue Teng¹, Qing Yu¹, Bradley Postle¹, ¹University of Wisconsin-Madison
Topic Area: EXECUTIVE PROCESSES: Working memory

D44 Rotational remapping between 'decision-potent' and 'decision-null' representations in visual working memory

Quan Wan¹, Ying Cai², Jason Samaha³, Bradley Postle¹, ¹University of Wisconsin-Madison, ²Zhejiang University, ³University of California, Santa Cruz
Topic Area: EXECUTIVE PROCESSES: Working memory

D45 Relationship of atrophy to task-related activity in the language network for different PPA clinical phenotypes

Rania Ezzo^{1,2}, Jeanne Gallée^{1,2}, Megan Quimby^{1,2}, Bradford Dickerson^{1,2}, Jessica Collins^{1,2}, ¹Massachusetts General Hospital, ²Harvard Medical School
Topic Area: LANGUAGE: Development & aging

D46 Examining Relationships between Home Literacy Environment, Language and White Matter Tracts from Infancy to Toddlerhood

Ally Lee^{1,2}, Jolijn Vanderauwera³, Ted Turesky^{1,2}, Joseph Sanfilippo¹, Jennifer Zuk^{1,2}, Ellen Grant¹, Nadine Gaab^{1,2}, ¹Boston Children's Hospital, ²Harvard Medical School, ³Universite Catholique de Louvain
Topic Area: LANGUAGE: Development & aging

D47 Semantic substitution errors in Chinese reading aloud

Catherine Caldwell-Harris¹, Jiajun Zhu¹, ¹Boston University
Topic Area: LANGUAGE: Lexicon

D48 Electrophysiological responses to audiovisual-words and pictures in hearing and deaf children using cochlear implants.

Elizabeth Pierotti¹, Sharon Coffey-Corina¹, Tristan Schaefer¹, Kayla Vodacek¹, Lee Miller¹, David Corina¹, ¹University of California, Davis
Topic Area: LANGUAGE: Lexicon

D49 Spatiotemporal dynamics of left Inferior Frontal Gyrus recruitment during spontaneous and cued speech production

Nikita Agrawal¹, Werner Doyle¹, Orrin Devinsky¹, Adeen Flinker¹, ¹NYU
Topic Area: LANGUAGE: Other

D50 The Relationship between White Matter Structural Integrity and Language Performance in Individuals with Aphasia

Emily Braun¹, Anne Billot¹, Ajay Kurani², Todd Parrish², Swathi Kiran¹, ¹Boston University, ²Northwestern University
Topic Area: LANGUAGE: Other

D51 Alpha suppression increases during situation model construction: Neural evidence for the structure building framework

Emily Coderre¹, Neil Cohn², ¹University of Vermont, ²Tilburg University
Topic Area: LANGUAGE: Other

D52 Musical Training is Associated with Better Reading and Differences in Resting State Functional Connectivity in Adults

Steven Meisler¹, Ola Ozernov-Palchik², Rola Farah³, Sara Beach², Tzipi Horowitz-Kraus³, John Gabrieli², ¹Harvard University, ²Massachusetts Institute of Technology, ³Technion - Israel Institute of Technology
Topic Area: LANGUAGE: Other

D53 Learning Swedish Predictive Tones Correlates with Grey and White Matter Reorganization

Mikael Novén¹, Merle Horne¹, Markus Nilsson¹, Mikael Roll¹, ¹Lund University
Topic Area: LANGUAGE: Other

D54 Neuronal Activity Reveal Region-Specific Functionality for Language Perception and Production

Leyao Yu¹, Doyle Werner¹, Orrin Devinsky¹, Adeen Flinker¹, ¹NYU
Topic Area: LANGUAGE: Other

D55 Event-related brain potent effects of actions and role relations during second language picture-sentence verification

Pia Knoeferle¹, Katja Maquate¹, Jennifer Lewendon², Carsten Schliewe¹, ¹Humboldt-University zu Berlin, ²Bangor University
Topic Area: LANGUAGE: Semantic

D56 A comparison of three vector space models of word meaning for mapping the semantic system

Deborah Levy¹, Stephen Wilson¹, ¹Vanderbilt University Medical Center
Topic Area: LANGUAGE: Semantic

D57 Hemispheric asymmetries in processing semantic relationships during reading

Melissa Troyer¹, Marta Kutas², ¹University of Western Ontario, ²University of California San Diego
Topic Area: LANGUAGE: Semantic

D58 Humor modulates prediction error updating in first and second language reading comprehension

Megan Zirstein¹, Rhonda Mudry², Sybrine Bultena³, Dorothee Chwilla⁴, Judith Kroll⁵, ¹Pomona College, ²Pennsylvania State University College of Medicine, ³Radboud University, ⁴Donder Institute for Brain, Cognition, and Behavior, ⁵University of California, Irvine
Topic Area: LANGUAGE: Semantic

D59 Lists with and without syntax: Neural correlates of syntactic structure

Ryan Law¹, Abu Dhabi Liina Pykkänen¹, ¹New York University
Topic Area: LANGUAGE: Syntax

D60 Attention! Behavioral evidence of distinct contributions of attention and working memory to speech comprehension

Corianne Rogalsky¹, Arianna LaCroix², Cassandra Rehwalt¹, Estefania Ordaz¹, ¹Arizona State University, ²Midwestern University
Topic Area: LANGUAGE: Syntax

D61 ERPs show preserved recollection but loss of familiarity in young adults who experience alcohol related memory blackouts

Judith Jackson¹, David Donaldson¹, Benjamin Dering¹, ¹University of Stirling
Topic Area: LONG-TERM MEMORY: Development & aging

D62 CSF tau levels correlate with age but not sex or MOCA in a memory clinic population

Syra Mehdi¹, Shreya Nair¹, Anil Nair¹, ¹Alzheimer Disease Center
Topic Area: LONG-TERM MEMORY: Development & aging

D63 Mindfulness training improves cognition and resting-state connectivity between the hippocampus and posteromedial cortex

Gunes Sevinc^{1,2}, Johann Rusche^{1,2}, Bonnie Wong^{1,2}, Bradford Dickerson^{1,2}, Sara Lazar^{1,2}, ¹Massachusetts General Hospital, ²Harvard Medical School
Topic Area: LONG-TERM MEMORY: Development & aging

D64 Signed Reward Prediction Errors in the Ventral Striatum Drive Episodic Memory

Cristian Buc Calderon¹, Esther De Loof¹, Kate Ergo¹, Anna Snoeck¹, Nico Boehler¹, Tom Verguts¹, ¹Ghent University
Topic Area: LONG-TERM MEMORY: Episodic

D65 Neural correlates of emotional episodic memory encoding and retrieval: Neuroimaging meta-analyses using seed-based d map

Kristina Dahlgren¹, Charles Ferris¹, Stephan Hamann¹, ¹Emory University
Topic Area: LONG-TERM MEMORY: Episodic

D66 Item-specific activity immediately preceding a memory-retrieval cue predicts memory retrieval success

Benjamin R. Geib¹, Roberto Cabeza¹, Marty Woldorff¹, ¹Duke University
Topic Area: LONG-TERM MEMORY: Episodic

D67 Multi-unit activity in human MTL reflects retrieval of spatial and temporal context

Nora A Herweg¹, Paul A Wanda¹, Lukas Kunz², Armin Brandt², Michael R Sperlin³, Ashwini D Sharan³, Andreas Schulze Bonhage², Michael J Kahana¹, ¹University of Pennsylvania, ²University Medical Center Freiburg, ³Thomas Jefferson University
Topic Area: LONG-TERM MEMORY: Episodic

D68 Warning eyewitnesses about misinformation influences sensory reactivation during memory retrieval

Jessica M. Karanian¹, Nathaniel Rabb², Alia N. Wulff², Ayanna K. Thomas², Elizabeth Race², ¹Fairfield University, ²Tufts University
Topic Area: LONG-TERM MEMORY: Episodic

D69 Fitness and Stress as Modulators of Hippocampal Subfield Structure and Function in Aging

Kathryn Kern¹, Rachel Nauer Wehr¹, Thomas Storer², Karin Schon¹, ¹Boston University School of Medicine, ²Brigham and Women's Hospital
Topic Area: LONG-TERM MEMORY: Episodic

D70 Reinstated episodic context guides visual exploration during scene recognition

James Kragel¹, Joel Voss¹, ¹Northwestern University
Topic Area: LONG-TERM MEMORY: Episodic

D71 Cortisol-Testosterone Interactions on Approach/Avoid Behaviors and Emotional Memory Consolidation

Antonio Martinez Tlatenchi¹, Jessica Payne¹, ¹University of Notre Dame
Topic Area: LONG-TERM MEMORY: Episodic

D72 Holistic recollection and incidental reinstatement of scene context

Alexa Morcom¹, Andres Tamm², Kevin Campion³, Richard Henson³, Alicia Forsberg⁴, Cox Simon⁵, ¹University of Sussex, ²University of Oxford, ³University of Cambridge, ⁴University of Missouri, ⁵University of Edinburgh
Topic Area: LONG-TERM MEMORY: Episodic

D73 Neural mechanisms underlying face memories modulated by context-dependent impressions of trustworthiness for others

Taiki Nishioka¹, Saeko Iwata¹, Takashi Tsukiura¹, ¹Kyoto University
Topic Area: LONG-TERM MEMORY: Episodic

D74 Pattern Separation Deficits in Multidimensional Schizotypy Consistent with Findings in Schizophrenia

Lili Sahakyan¹, Chris Wahlheim², Thomas Kwapił¹, ¹UIUC, ²University of North Carolina
Topic Area: LONG-TERM MEMORY: Episodic

D75 Differential effects of reappraisal- and suppression-based regulation during retrieval of episodic memories

Rosalie Samide¹, Maureen Ritchey¹, ¹Boston College
Topic Area: LONG-TERM MEMORY: Episodic

D76 Frontoparietal contributions to strategic criterion shifts during recognition memory

Tyler Santander¹, Elissa Aminoff², Michael Miller¹, ¹University of California, Santa Barbara, ²Fordham University
Topic Area: LONG-TERM MEMORY: Episodic

D77 Neural Correlates of Autobiographical Memory Retrieval: A Meta-Analysis Using Seed-based d Mapping

Susie Shepardson¹, Kristina Dahlgren¹, Stephan Hamann¹, ¹Emory University
Topic Area: LONG-TERM MEMORY: Episodic

D78 Neural representations of structured semantic knowledge mediate variability in episodic memory

Shao-Fang Wang¹, Jiefeng Jiang¹, Tyler Bonnen¹, Chris Iyer¹, Anthony Wagner¹, ¹Stanford University
Topic Area: LONG-TERM MEMORY: Episodic

D79 Targeted Memory Reactivation of Face-Name Associations Depends on Undisturbed Slow-Wave Sleep

Nathan Whitmore¹, Adrianna M. Bassard¹, Ken A. Paller¹, ¹Northwestern University
Topic Area: LONG-TERM MEMORY: Episodic

D80 Differential Mnemonic Discrimination of Faces: A Contributing Mechanism to the Other-Race Effect

Jessie Yaros¹, Diana Salama¹, Derek Delisle¹, Myra Larson¹, Blake Miranda¹, Martina Hollearn¹, Bethany Houalla¹, Guanqiao Yu¹, Robert Jirsaraie¹, Michael Yassa¹, ¹UC Irvine
Topic Area: LONG-TERM MEMORY: Episodic

D81 Consumption of a fermented dairy beverage over four-weeks improves relational memory in healthy young adults

Corinne Cannavale¹, Annemarie Krug¹, Hannah Holscher¹, Naiman Khan¹,
¹University of Illinois at Urbana-Champaign
 Topic Area: LONG-TERM MEMORY: Other

D82 Dissociating fMRI activity related to familiarity strength vs. decision criteria during recognition memory

Evan Layher¹, Courtney Durdle¹, Sara Leslie¹, Tyler Santander¹, Michael Miller¹,
¹UC Santa Barbara
 Topic Area: LONG-TERM MEMORY: Other

D83 Using event related potentials to understand the effect of feedback timing on learning systems

Kristen Nunn¹, Robert Creighton¹, Victoria Tilton-Bolowsky¹, Yael Arbel¹,
 Sofia Vallila-Rohter¹,
¹MGH Institute of Health Professions
 Topic Area: LONG-TERM MEMORY: Other

D84 Distinct disruption of functional connectivity in semantic dementia

Marty Fiata¹, Francis Eustachea¹, Mikael Laisneya¹, Harmony Duclosa¹,
 Serge Belliarda¹, Vincent de La Sayettea¹, Béatrice Desgrangesa¹, Armelle Viarda¹,
¹Normandie Univ, UNICAEN, PSL Research University, EPHE, INSERM,
 Topic Area: LONG-TERM MEMORY: Semantic

D85 Waves of Binding: EEG oscillations during integration of visual, auditory, and lexical stimuli

Hannah M. Morrow¹, Eiling Yee¹,
¹University of Connecticut
 Topic Area: LONG-TERM MEMORY: Semantic

D86 Behavior and neurophysiological correlates of sensitivity to positional regularity in a novel statistical learning test

Denise Wu¹, Andhika Renaldi¹,
¹National Central University
 Topic Area: LONG-TERM MEMORY: Skill Learning

D87 Distinct patterns of intrinsic spectral-power associations on the sub-second and seconds timescales

Marcia Grabowecy¹, Melisa Menciloglu¹, Satoru Suzuki¹,
¹Northwestern University
 Topic Area: METHODS: Electrophysiology

D88 Uncovering dynamical states through concurrent electroencephalography (EEG) and electrocorticography (ECoG)

Nuttida Rungratsameetaweemana¹, Claudia Lainscsek², Javier O. Garcia³,
 Kanika Bansal³, Sydney S. Cash⁴, Terrence J. Sejnowski²,
¹University of California, San Diego, ²The Salk Institute for Biological Studies, ³US Combat Capabilities Development Command Army Research Lab, ⁴Massachusetts General Hospital, ⁵Harvard Medical School
 Topic Area: METHODS: Electrophysiology

D89 QEEG based cortical sources of default mode network in addiction.

Simran Kaur¹, Shaon Ghosh Dastidar¹, Yatan Pal Singh Balhara¹, Prashant Tayade¹,
 Ratna Sharma¹,
¹AIIMS, New Delhi
 Topic Area: METHODS: Electrophysiology

D90 Using fNIRS to Determine Dual Task Walking Brain Activation Changes in Older Adults: Systematic Review and Meta-Analysis

Alka Bishnoi¹, Manuel Hernandez¹,
¹University of Illinois at Urbana-Champaign
 Topic Area: METHODS: Neuroimaging

D91 Predictive models of IQ from functional connectivity data may not be sex specific

Javid dadashkarimi¹, Dustin Scheinost¹,
¹Yale University
 Topic Area: METHODS: Neuroimaging

D92 Functional brain network is associated with cognitive decline in amyloid positive elders

Eun Hyun Seo¹, Yoon HyungJun¹, Ji-Yeon Chung¹, Hoowon Kim¹,
¹Chosun University
 Topic Area: METHODS: Neuroimaging

D93 From Lab to Livingroom: The Validation of low-cost fNIRS

Robert Trska¹, Jordan Kokkelink¹, Olave E Krigolson¹,
¹University of Victoria
 Topic Area: METHODS: Neuroimaging

D94 Modeling Degenerate Neural Architecture Using Neural Topographic Factor Analysis

Yiyu Wang¹, Zulqarnain Khan¹, Eli Sennesh¹, Jennifer Dy¹, Jan-Willem van de Meent¹,
 J. Benjamin Hutchinson², Ajay Satpute¹,
¹Northeastern University, ²University of Oregon
 Topic Area: METHODS: Neuroimaging

D95 A Regularization Method for Linking Brain and Behavior

Woojong Yi¹, Inhan Kang¹, Brandon M. Turner¹,
¹The Ohio State University
 Topic Area: METHODS: Other

D96 Early exposure to reading relates to leftward structural asymmetries critical for literacy development in pre-readers

Lindsay Hillyer^{1, 2}, Xi Yu^{1, 3}, Angeliki Mougou^{1, 2}, Eline Laurent^{1, 2}, Jade Dunstan^{1, 2},
 Emma Boyd⁴, Lilla Zöllei⁴, Nadine Gaab^{1, 2},
¹Boston Children's Hospital, ²Harvard Medical School, ³Beijing Normal University, ⁴A.A. Martinos Center for Biomedical Imaging, MGH
 Topic Area: NEUROANATOMY

D97 Does functional connectivity within the DMN predict individual differences in social pleasure in schizophrenia?

Bridget Shovelstul¹, Emily Dudek¹, Steven Lamberti¹, David Dodell-Feder¹,
¹University of Rochester
 Topic Area: NEUROANATOMY

D98 Age differences in cortical gyrfication: Evidence from accelerated longitudinal datasets

Christopher Madan¹,
¹University of Nottingham
 Topic Area: NEUROANATOMY

D99 A unified brain system of orientation and its disruption in Alzheimer's disease

Amnon Dafni-Merom¹, Gregory Peters-Founshtein¹, Shlomzion Kahana-Merhavi²,
 Shahar Arzy¹,
¹The Hebrew University of Jerusalem, ²Hadassah Hebrew University Medical School
 Topic Area: OTHER

D100 Neuroprotective role of transgenic resveratrol rice DJ526 callus in Drosophila melanogaster

Mousumee Khan¹, Seong-Tshool Hong¹,
¹Jeonbuk National University, Jeonju, Republic of Korea
 Topic Area: OTHER

D101 Low Socioeconomic Status as a Proxy for Stress in the Brain

Ashley Mensing¹, Kristin Maurer¹, Nikita Das¹, Eleanna Burns¹,
 Yaakov Stern¹,
¹Columbia University
 Topic Area: OTHER

D102 Contextual constraint and key membership influence neural correlates of melodic prediction violations

Allison Fogel¹, Emily Morgan², Gina Kuperberg^{1, 3}, Aniruddh Patel¹, ¹Tufts University; ²University of California, Davis; ³Massachusetts General Hospital
Topic Area: PERCEPTION & ACTION: Audition

D103 Real and imagined sensory feedback have comparable effects on action anticipation

Ana P. Pinheiro¹, Michael Schwartz², Sonja Kotz², ¹University of Lisbon, ²University of Maastricht
Topic Area: PERCEPTION & ACTION: Audition

D104 Accuracy in chunk retrieval is correlated with the presence of acoustically driven delta brain waves

Johanna Rimmele¹, David Poeppel², Oded Ghitza³, ¹Max Planck Institute for Empirical Aesthetics; ²New York University; ³Boston University
Topic Area: PERCEPTION & ACTION: Audition

D105 Learning and Reward through a New Musical System

Matthew Sachs¹, Euan Zhang¹, Dana Walker¹, Psyche Loui¹, ¹Northeastern University
Topic Area: PERCEPTION & ACTION: Audition

D106 Structural connectivity fingerprints of category-selective visual regions mature early in infancy

Laura Cabral¹, Leire Zubiaurre², Conor Wild³, Annika Linke⁴, Rhodri Cusack⁵, ¹University of Pittsburgh; ²University of Deusto; ³University of Western Ontario; ⁴San Diego State University; ⁵Trinity College Dublin
Topic Area: PERCEPTION & ACTION: Development & aging

D107 Inhibitory Gating in Older Adults and Persons with Parkinson's Disease after a Socially Evaluated Cold Pressor

Andrew Zaman¹, Elizabeth Stegemoller¹, ¹Iowa State University
Topic Area: PERCEPTION & ACTION: Development & aging

D108 Cross-frequency coupling explains preference for simple ratios in the relative phase of bimanual rhythmic tapping

Dobromir Dotov¹, Laurel Trainor^{1,2}, ¹PNB, McMaster University; ²Rotman Research Institute
Topic Area: PERCEPTION & ACTION: Motor control

D109 Neural reuse in the anterior insula? Disgusting smells selectively increase precision of visual looming perception

Matthieu de Wit¹, Michael Tronolone¹, Laura Styer¹, Calista Bender¹, ¹Muhlenberg College
Topic Area: PERCEPTION & ACTION: Multisensory

D110 The timing of spontaneous eye blinks shows different influences during a visual and an auditory temporal judgement task

Supriya Murali¹, Mareike Brych¹, Liyu Cao¹, Barbara Haendel¹, ¹University of Wuerzburg
Topic Area: PERCEPTION & ACTION: Multisensory

D111 Neurofunctional correlates of body-ownership and sense of agency: a meta-analytical account of self-consciousness

Silvia Seghezzi¹, Gianluigi Giannini¹, Laura Zapparoli², ¹University of Milano-Bicocca; ²IRCCS Istituto Ortopedico Galeazzi
Topic Area: PERCEPTION & ACTION: Other

D112 Sensitivity to information about face shape in the fusiform gyrus of congenitally blind individuals

Lukasz Bola¹, Huichao Yang², Alfonso Caramazza¹, Yanchao Bi², ¹Harvard University; ²Beijing Normal University
Topic Area: PERCEPTION & ACTION: Vision

D113 Neural entrainment to synchronous and asynchronous observed human movement

Emiel Cracco¹, Haeun Lee², Guido Orgs², ¹Ghent University; ²Goldsmiths, University of London
Topic Area: PERCEPTION & ACTION: Vision

D114 Discriminability of Neural Patterns within the Magnocellular and Parvocellular Visual Pathways

Daniel Elbich¹, Reginald Adams¹, Kestutis Kveraga², Nancy Dennis¹, ¹The Pennsylvania State University; ²Harvard Medical School
Topic Area: PERCEPTION & ACTION: Vision

D115 Drawing as a window into visual learning and plasticity following treatment for congenital bilateral blindness

Sharon Gilad-Gutnick¹, Katharine Wu², Juliette Sander², Sunny Tang³, Pragya Shah⁴, Priti Gupta⁴, Pawan Sinha¹, ¹Massachusetts Institute of Technology; ²Wellesley College; ³Dartmouth College; ⁴Project Prakash
Topic Area: PERCEPTION & ACTION: Vision

D116 Saccadic and Pupillary Response as Biobehavioral Markers in a Perceptual Organization Task

Peter Gordon¹, Daniel Kurylo², Jean Ee Tang¹, Lingwei Ouyang³, Cosku Arslanbogan¹, Anh Le¹, Jennifer Scheu¹, Courtney Windram¹, Cindy Romero¹, Christopher Riviera⁴, Yanbin Niu¹, Richard Waxman¹, ¹Columbia University; ²Teachers College; ³City University of New York, Brooklyn College; ⁴Stanford University; ⁴City University of New York, Hunter College
Topic Area: PERCEPTION & ACTION: Vision

D117 Rapid reorganization in adult human primary visual cortex and consequent perceptual elongations are mediated by GABA

Yaseen Jamal¹, Derek Hu¹, Guldehan Durman¹, Eva Ratai², Daniel Dilks¹, ¹Emory University; ²Harvard Medical School
Topic Area: PERCEPTION & ACTION: Vision

D118 Superior discrimination of complex biological motions in native ASL signers

Lorna Quandt¹, Emily Kubicek¹, Jason Lamberton¹, ¹Gallaudet University
Topic Area: PERCEPTION & ACTION: Vision

D119 Information can be extracted from ventral stream multi-voxel patterns across spatial scales using the wavelet transform

Xueying Ren¹, Marc N. Coutanche¹, ¹University of Pittsburgh
Topic Area: PERCEPTION & ACTION: Vision

D120 How Frank Lloyd Wright Used Fundamental Mechanisms of Perception To Generate His Uniquely Powerful Aesthetics

John Shoaff¹, ¹AIA, Architect
Topic Area: PERCEPTION & ACTION: Vision

D121 Food choice reflected in brain activation: age matters

Monique Lorist¹, Marjorie van Kooten¹, ¹University of Groningen
Topic Area: THINKING: Decision making

D122 Body representation distortions at a higher resolution: the role of the spatial acuity in length and width estimation of body parts.

Ben Reuveni¹, Paul Reber¹, ¹Northwestern University
Topic Area: THINKING: Decision making

D123 Boundary Conditions for the Positive-Skew Preference in Risky Decision MakingKendra Seaman¹, Sade Abiodun², ¹The University of Texas at Dallas, ²Duke University

Topic Area: THINKING: Decision making

D124 Opinion Changes on Debatable Arguments Involve Executive Process, but Opinion Amplification does notMasako Tanaka¹, Motoaki Sugiura¹, Ketaro Oba¹, Shigeyuki Ikeda¹, Seishu Nakagawa², Ryuta Kawashima¹, ¹Tokyo Denki University, ²Tohoku Medical and Pharmaceutical University

Topic Area: THINKING: Decision making

D125 Prolonged Cannabis Use Decreases Cognitive EffortMackenzie Taylor¹, Francesca Filbey¹, ¹The University of Texas at Dallas

Topic Area: THINKING: Decision making

D126 Effects of posterior-anterior shift in the aging brain on creativity: A combined ICA and resting-state fMRI studyAbhishek Uday Patil¹, Deepa Madathil¹, Ovid J L Tzeng², Hsu-Wen Huang³, Chih-Mao Huang⁴, ¹Vellore Institute of Technology, ²Academia Sinica, ³City University of Hong Kong, ⁴National Chiao Tung University

Topic Area: THINKING: Development & aging

D127 The Role of Intuitions on the Emergence of Conscious Knowledge: Evidence from a Serial Reaction Time TaskAdam Weinberger¹, Adam Green¹, ¹Georgetown University

Topic Area: THINKING: Other

D128 Simultaneous measurement of speech and autonomic nervous activity during a conversational creative problem-solving taskTakashi Numata¹, Toshinori Miyoshi¹, Kiyoshi Kotani², Hiroki Sato³, ¹Hitachi, Ltd., ²The University of Tokyo, ³Shibaura Institute of Technology

Topic Area: THINKING: Problem solving

D129 Higher intelligence is associated with a more effective adaptation of brain activity to cognitive demandsUlrike Basten¹, Rebecca A. Mayer¹, Rebekka Weygandt¹, Christian J. Fiebach¹, ¹Goethe University Frankfurt

Topic Area: THINKING: Reasoning

Session E

Monday, March 16, 2:30–4:30 pm, Exhibit Hall C

E1 Neural networks supporting memory-guided and cued attention in children: Mechanisms explaining the achievement gapMaya Rosen¹, Lucy Lurie¹, Kelly Sambrook², Andrew Meltzoff², Katie McLaughlin¹, ¹Harvard University, ²University of Washington

Topic Area: ATTENTION: Development & aging

E2 Relationships between age-related changes in attention span and anticipatory neural activityAlexander Simon¹, Joaquin Anguera¹, Courtney Gallen¹, David Ziegler¹, Adam Gazzaley¹, ¹UCSF

Topic Area: ATTENTION: Development & aging

E3 Neural oscillatory dynamics in directed and divided attentionMarie McCusker¹, Alex Wiesman¹, Tony Wilson¹, ¹University of Nebraska Medical Center

Topic Area: ATTENTION: Multisensory

E4 Prestimulus alpha modulation during a semantic judgement taskLisa Payne¹, Many Jiwjinda², Chad Dubé³, ¹Rutgers University, ²Swarthmore College, ³University of South Florida

Topic Area: ATTENTION: Nonspatial

E5 Attentional control as a potential mechanism linking worry and error monitoring: An event-related potential studyAnthony Cruz¹, Kevin Saulnier¹, Annmarie Huet¹, Nicholas Allan¹, ¹Ohio University

Topic Area: ATTENTION: Other

E6 Perceptual distraction disrupts the filter that gates visual working memory accessBlaire Dube¹, Julie Golomb¹, ¹The Ohio State University

Topic Area: ATTENTION: Other

E7 Trait anxiety modulates event-related potentials to alcohol images in social drinkersAlyse Finch, Allison Zborowski¹, Scott Oetli¹, Natalie Ceballos¹, Reiko Graham¹, ¹Texas State University

Topic Area: ATTENTION: Other

E8 Engagement of the IPL Depends on Perceptual and Semantic Processing DemandsOliver Gray^{1,2}, Lewis Fry^{1,2}, Martyn Mcfarquhar^{1,2}, Daniela Montaldi^{1,2}, ¹DNEP, ²University of Manchester

Topic Area: ATTENTION: Spatial

E9 Abnormal Cortical Folding Correlates with Spatial Working Memory in Unaffected Relatives of SchizophreniaIn Kyung Park¹, Tae Young Lee¹, Wu Jeong Hwang¹, Minah Kim¹, Jun Soo Kwon¹, ¹Seoul National University

Topic Area: ATTENTION: Spatial

E10 Are attention-related modulations of alpha-band dynamics local or global?Mattia Pietrelli¹, Jason Samaha², Bradley Postle¹, ¹UW Madison, ²UC Santa Cruz

Topic Area: ATTENTION: Spatial

E11 Age-related differences in the statistical regularity of emotional facesYi-Wen Kao¹, Hsing-Hao Lee¹, Joshua Oon Soo Goh¹, Su-Ling Yeh¹, ¹National Taiwan University

Topic Area: EMOTION & SOCIAL: Development & aging

E12 Different oscillatory networks underlie reward processing of novel and familiar musicAlberto Ara¹, Josep Marco-Pallarés¹, ¹University of Barcelona

Topic Area: EMOTION & SOCIAL: Emotional responding

E13 Deep and surface feature representations of affective dimensions in the human brainSaeedeh Sadeghi¹, Xinyi Li¹, Junichi Chikazoe², Eve DeRosa¹, Adam Anderson¹, ¹Cornell University, ²Japan National Institute for Physiological Sciences

Topic Area: EMOTION & SOCIAL: Emotional responding

E14 Alterations in the Sympathetic Nervous System Reflecting Challenge and Threat When Confronted with Failure or SuccessViktoriya Babenko¹, Neil M. Dundon¹, Evan Layher¹, Scott T. Grafton¹, ¹University of California, Santa Barbara

Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

E15 Effects of stress-related changes in pre-encoding intrinsic connectivity on subsequent emotional memory biases

Jaclyn Ford¹, Sara Y. Kim², Sarah Kark³, Ryan Daley¹, Jessica Payne², Elizabeth Kensinger¹, ¹Boston College, ²University of Notre Dame, ³UC Irvine
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

E16 The Influence of Media Violence Exposure on Explicit and Implicit Emotional Face Processing

Zoa Glab¹, Laura Stockdale^{1,2}, Sylena Wilson¹, Marley Hornewer³, Sydney Sarnoska¹, Joseph Vukov¹, Rebecca Siltan¹, Robert Morrison¹, ¹Loyola University Chicago, ²Brigham Young University, ³University of Michigan
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

E17 Brain-Behavior Connections in ASD: Making Sense of Neural Activity in Emotion Recognition and ToM

Yu Han¹, Patricia Prelock¹, Emily Coderre¹, ¹University of Vermont
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

E18 The Emotional Regulation Effect of Cognitive Reappraisal and Psychological Anticipation on Behavior Inhibition

Xiaoli He¹, Lichen Zhou¹, Sha Xu¹, Jiaxu Gu¹, ¹NingXia University
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

E19 Brain's sensitivity to other's stimuli processing, a potential factor for the similarity of percepts across individuals

Matthieu lenne¹, Amanda Tardif¹, Bruno J. Debrulle¹, ¹McGill University,
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

E20 Individual differences in personality traits and meta-traits are associated with features of intrinsic brain networks

Matthew Moore¹, Grace Goodwin¹, Evan Anderson¹, Chris Zwilling¹, Tanveer Talukdar¹, Charles Hillman², Neal Cohen¹, Arthur Kramer², Aron Barbey¹, ¹University of Illinois at Urbana-Champaign, ²Northeastern University
Topic Area: EMOTION & SOCIAL: Other

E21 Irritability in Adolescent ADHD: Relations with Functional Connectivity and Subsequent Degree of ADHD Symptoms

Julie Schweitzer¹, Veronika Vilgis¹, Sarah Kahle¹, Shawn Rhoads¹, Grant Shields¹, Prerona Mukherjee¹, Amanda Guyer¹, ¹University of California, Davis
Topic Area: EMOTION & SOCIAL: Other

E22 Not always the face: differences between human and dog neural face- and conspecific-preference

Attila Andics¹, Nóra Bunford², Raúl Hernández-Pérez¹, Eszter Borbála Farkas¹, Laura V. Cuaya¹, Dóra Szabó¹, Ádám György Szabó³, Márta Gácsi¹, Ádám Miklósi¹, ¹ELTE Department of Ethology, Budapest, Research Centre for Natural Sciences, Budapest, MR Research Center, Semmelweis University
Topic Area: EMOTION & SOCIAL: Person perception

E23 Political identity priming and own-race bias in Caucasian and Hispanic/Latino college students

Aspen Madrid¹, Crystal Oberle¹, ¹Texas State University
Topic Area: EMOTION & SOCIAL: Person perception

E24 The dimensional structure of social relationship knowledge

Haroon Popal¹, Yin Wang², Mark Thornton³, Ingrid Olson¹, ¹Temple University, ²Beijing Normal University, ³Dartmouth University
Topic Area: Topic Area: EMOTION & SOCIAL: Person perception

E25 Differential modulation of brain responses to face stimuli after exposure to urban versus forest environments

Eszter Toth¹, Jane Raymond¹, Ali Mazaheri¹, ¹University of Birmingham
Topic Area: EMOTION & SOCIAL: Person perception

E26 Does combined decision-making training and tDCS produce generalizable cognitive benefits in healthy older adults?

Kristina Horne¹, Hannah L. Filmer¹, Jason B. Mattingley¹, Paul E. Dux¹, Zoie Nott¹, ¹University of Queensland
Topic Area: EXECUTIVE PROCESSES: Development & aging

E27 Differences in Cognitive and Motor Inhibition of Aging Musicians and Non-Musicians

Patricia Izbicki¹, Kate Rumel², Andrew Zaman¹, Elizabeth Stegemoller¹, ¹Iowa State University, ²Elmherst College
Topic Area: EXECUTIVE PROCESSES: Development & aging

E28 The distinct roles of prefrontal GABA and glutamate/glutamine in two types of cognitive control

Boman Groff¹, Hilary Traut¹, Rebecca Helmuth¹, Harry Smolker¹, Mark Brown^{1,2}, Hannah Snyder³, Benjamin Hankin⁴, Marie Banich¹, ¹University of Colorado Boulder, ²Anschutz Medical Campus, ³Brandeis University, ⁴University of Illinois Urbana-Champaign
Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

E29 Effects of Action Priming on Involuntary Imagery in the Reflexive Imagery Task

Alejandro Heredia Cedillo¹, Christina Y. Wong¹, Ezequiel Morsella¹, Mark W. Geisler¹, ¹San Francisco State University
Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

E30 Exploring Developmental Changes In Functional Connectivity Associated With Cognitive Flexibility

Meagan Smith¹, Anastasia Kerr-German², Aaron Buss¹, ¹The University of Tennessee, ²Boys Town National Research Hospital
Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

E31 Atypical response inhibition in 22q11.2DS: diminished error registration and awareness

Ana Clara Alves Francisco¹, Douwe J Horsthuis¹, John J Foxe^{1, 2}, Sophie Molholm^{1, 2}, ¹Albert Einstein College of Medicine, ²University of Rochester
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

E32 Mobile brain/body imaging of cognitive-motor impairment in multiple sclerosis

Pierfilippo De Sanctis¹, Brenda R Malcolm¹, Peter Mabbie¹, Ana Francisco¹, Wenzhu Mowrey¹, Sonja Joshi¹, Sophie Molholm¹, John J Foxe¹, ¹Albert Einstein College of Medicine
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

E33 Drift rates confirm the critical role of interference control during metaphor comprehension

Hyeon-Ae Jeon¹, Minh Shin¹, Hee-Dong Yoon¹, ¹Daegu Gyeongbuk Institute of Science & Technology
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

E34 The neural correlates involved in the early and late phases of statistical learning

Jungtak Park¹, Hyeon-Ae Jeon¹, ¹Daegu Gyeongbuk Institute of Science & Technology
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

E35 Structural Brain Correlates of Procedural Learning in Dyslexia

Francesca Pentimalli¹, Ola Ozernov-Palchik¹, Sara Beach¹, Tracy M Centanni², John D.E Gabrieli¹, ¹MIT, ²Texas Christian University
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

E36 Neurophysiological markers of sensorimotor and cognitive-motor dysfunctions in autism

Lisa N. Cruz¹, Douwe Horsthuis², Brenda Malcolm², Sonja Joshi², Carol Terilli³, John J. Foxe⁴, Pierfilippo De Sanctis², Sophie Molholm, ¹Yeshiva University, ²Albert Einstein College of Medicine, ³Montefiore Medical Center, ⁴University of Rochester Medical Center

Topic Area: EXECUTIVE PROCESSES: Other

E37 Executive functioning profiles in unaffected relatives, prodromal and early psychosis

Wu Jeong Hwang¹, Tae Young Lee¹, Minah Kim¹, Jun Soo Kwon¹, ¹Seoul National University

Topic Area: EXECUTIVE PROCESSES: Other

E38 Cognitive and neural deficits associated with a history of mTBI

Hector Arciniega¹, Marian Berryhill¹, ¹University of Nevada, Reno

Topic Area: EXECUTIVE PROCESSES: Working memory

E39 Functional organization of hippocampus is altered by associative encoding and retrieval

Wei-Tang Chang¹, Stephanie Langella¹, Weili Lin¹, Kelly Giovanello¹, ¹UNC at Chapel Hill

Topic Area: EXECUTIVE PROCESSES: Working memory

E40 The Cerebellum Works Across Task-Positive and Task-Negative Networks

Magda L. Dumitru¹, Laurens Van Calster², Steve Majerus², Kenneth Hugdahl¹, ¹University of Bergen, ²University of Liege

Topic Area: EXECUTIVE PROCESSES: Working memory

E41 Feedback Processing and Working Memory in Children with Typical and Atypical Language Development

Isabel Fitzpatrick¹, Xinyi He¹, Zoya Surani², Yael Arbel¹, ¹MGH Institute of Health Professions, ²Harvard University

Topic Area: EXECUTIVE PROCESSES: Working memory

E42 Acute bouts of intense interval and moderate continuous exercise alter neural oscillation during working memory

Alvin Kao¹, Chun-Hao Wang², Keita Kamijo³, Chih-Chun Lin², Naiman Khan⁴, Charles Hillman⁵, ¹Purdue University, ²National Cheng Kung University, ³University of Tsukuba, ⁴University of Illinois at Urbana-Champaign, ⁵Northeastern University

Topic Area: EXECUTIVE PROCESSES: Working memory

E43 Causal Evidence that Theta and Alpha Neural Oscillations Dynamically Coordinate Output-gating

Justin Riddle¹, Trevor McPherson¹, Flavio Frohlich¹, ¹University of North Carolina at Chapel Hill

Topic Area: EXECUTIVE PROCESSES: Working memory

E44 Indicators of intellectual activity mediate the relationship between adult poverty and executive function

Alexandre Schaefer¹, Sony Kusumasondjaja², Fandy Tjiptono³, Nobuhiko Goto Kyoto⁴, Xue Li Lim⁵, Dexter Shee¹, Nuri Herachwati², Wai Ching Poon¹, Min Hooi Yong⁶, Faisal Mushtaq⁷, ¹Monash University, ²Airlangga University, ³Victoria University of Wellington, ⁴Notre Dame University, ⁵Jülich Research Center, ⁶Sunway University, ⁷University of Leeds

Topic Area: EXECUTIVE PROCESSES: Working memory

E45 Pretrial EEG microstates correlates of performance in a visuospatial working memory

Ratna Sharma¹, Suriya Muthukrishnan¹, Sunaina Soni¹, ¹All India Institute of Medical Sciences

Topic Area: EXECUTIVE PROCESSES: Working memory

E46 Sentence listening comprehension among Chinese bilinguals and English monolinguals: An fNIRS study

Guoqin Ding¹, Kathleen Mohr¹, Ronald Gillam¹, Carla Orellana¹, ¹Utah State University

Topic Area: LANGUAGE: Development & aging

E47 VWFA Functional Connectivity for Print and Speech Processing in Emerging Readers

Rebecca Marks¹, Lynn Eickholt¹, Yuuko Uchikoshi², Fumiko Hoeft³, Ioulia Kovelman¹, ¹University of Michigan, ²University of California, Davis, ³University of Connecticut

Topic Area: LANGUAGE: Development & aging

E48 Reading abilities of the right hemisphere in left- and right-handers

Rolando Bonandrini¹, Eraldo Paulesu¹, Elena Capelli¹, Claudio Luzzatti¹, ¹University of Milan-Bicocca

Topic Area: LANGUAGE: Lexicon

E49 When two vowels go walking: an ERP study of the vowel team rule

Donna Coch¹, Margaret Rose Mahoney², ¹Dartmouth College, ²Vanderbilt University School of Medicine

Topic Area: LANGUAGE: Lexicon

E50 Neural Correlates of Auditory Comprehension: Single-Word versus Sentence Comprehension

Juliana Baldo¹, Sandy Lwi¹, Brian Curran¹, Nina Dronkers², Timothy Herron¹, Krista Schendel¹, ¹VA Northern California, ²University of California, Berkeley

Topic Area: LANGUAGE: Other

E51 Cerebral Perfusion and Brain Activity Related to Reading Aloud in Subacute-to-Chronic Stroke Recovery

Olga Boukrina¹, William Graves², A.M. Barrett³, ¹Kessler Foundation, Center for Stroke Rehab Research, ²Rutgers University, ³Center for Visual and Neurocog Rehab

Topic Area: LANGUAGE: Other

E52 Modulation of motor-induced suppression by phonotactic probability and syllable stress

Alexandra Emmendorfer¹, Milene Bonte¹, Bernadette Jansma¹, Sonja Kotz¹, ¹Maastricht University

Topic Area: LANGUAGE: Other

E53 Third person perspective impedes comprehension in patients with lesions in right temporo-parietal junction

Franziska Hartung¹, Emily Coderre², Stacey Humphries¹, Anjan Chatterjee¹, ¹University of Pennsylvania, ²University of Vermont

Topic Area: LANGUAGE: Other

E54 Neural Activation for Lexical Sign and Pantomimic Gestures in Deaf Signers

Tatiana Matyushkina¹, Kayoko Okada², Gregory Hickok³, Svenna Pedersen⁴, Ursula Bellugi⁴, David Corina¹, ¹UC Davis, ²Loyola Marymount University, ³UC Irvine, ⁴Salk Institute for Biological Studies

Topic Area: LANGUAGE: Other

E55 Early signed language exposure does not harm phonemic discrimination for individuals with cochlear implants (CIs)

Shakhlo Nematova¹, Benjamin Zinszer¹, Thierry Morlet², Giovanna Morini¹, Laura-Ann Petitto³, Kaja Jasinska^{1,4}, ¹University of Delaware, ²Nemours/Alfred I. duPont Hospital for Children, ³Gallaudet University, ⁴Haskins Laboratories

Topic Area: LANGUAGE: Other

E56 Interplay of episodic and semantic memory in repeat object referenceZachary Ekves¹, Yanina Prystauka¹, Gerry Altmann¹, ¹University of Connecticut

Topic Area: LANGUAGE: Semantic

E57 The Time Course of Meaning Construction with Varying ExpectationsMatthew Kmiecik¹, Lauren Kim¹, Mandy Maguire¹, John Hart¹, Daniel Krawczyk¹, ¹The University of Texas at Dallas

Topic Area: LANGUAGE: Semantic

E58 Evolution of Symbolic Neuronal Operations: of Fish and MenDonald O'Malley¹, Whitney Kuwamoto¹, ¹Northeastern University

Topic Area: LANGUAGE: Semantic

E59 Responsiveness to cues as a measure of emerging language ability in aphasiaMegan Schliep¹, Victoria Tilton-Bolowsky¹, David Caplan², Sofia Vallila-Rohrer¹, ¹MGH Institute of Health Professions, ²Harvard Medical School

Topic Area: LANGUAGE: Semantic

E60 P600 and dispositional affectVeena Dwivedi¹, Janahan Selvanayagam², Brent Dryczewycz¹, Louis Schmidt³, ¹Brock University, ²Western University, ³McMaster University

Topic Area: LANGUAGE: Syntax

E61 Listeners' experience with face-accent (in)congruencies modulates speaker identity effects in native-and foreign-accentCarla Fernandez¹, Janet van Hell², ²Duke University, ¹The Pennsylvania State University

Topic Area: LANGUAGE: Syntax

E62 The impact of altered sleep on memory consolidation in Parkinson's disease patientsSoraya Lahlou^{1,2}, Marta Kaminska², Julie Carrier³, Madeleine Sharp^{1,2}, ¹Montreal Neurological Institute, ²McGill University, ³Université de Montréal

Topic Area: LONG-TERM MEMORY: Development & aging

E63 Naturalistic auditory narratives synchronize 'visual' cortices of congenitally but not late blind or sighted peopleElizabeth Musz¹, Rita Lioitile¹, Janice Chen¹, Marina Bedny¹, ¹Johns Hopkins University

Topic Area: LONG-TERM MEMORY: Development & aging

E64 Neural mechanisms underlying the use of learned value to guide memory across developmentKate Nussenbaum¹, Daphne Valencia¹, Jamie Greer², Nora Keathley³, Catherine A. Hartley¹, ¹New York University, ²Vassar College, ³Emory University

Topic Area: LONG-TERM MEMORY: Development & aging

E65 Reinstatement of Item-Specific Contextual Details During Retrieval Supports Recombination-Related False MemoriesAlexis Carpenter¹, Preston Thakral¹, Alison Preston², Daniel Schacter¹, ¹Harvard University, ²University of Texas at Austin

Topic Area: LONG-TERM MEMORY: Episodic

E66 Does reset of hippocampal theta predict dynamics of memory encoding?Ryan Colyer¹, Michael Kahana¹, ¹University of Pennsylvania

Topic Area: LONG-TERM MEMORY: Episodic

E67 Manipulating associative encoding strategy impacts neural discriminability at encoding and retrievalCourtney R. Gerver¹, Amy A. Overman², Jordyn Cowan², Carter Jenkins², Bennet E. Kautz¹, Manzhao Long¹, Min Sung Seo¹, Nancy A. Dennis¹, ¹The Pennsylvania State University, ²Elon University

Topic Area: LONG-TERM MEMORY: Episodic

E68 Effects of Transcranial Direct Current Stimulation of Ventrolateral Prefrontal Cortex on Value-Based Memory EncodingLinfeng Han¹, Michael S. Cohen², Liqin He³, Laura M. Green³, Alan D. Castel³, Barbara J. Knowlton³, Jesse Rissman³, ¹Tsinghua University, ²University of Pennsylvania, ³University of California, Los Angeles

Topic Area: LONG-TERM MEMORY: Episodic

E69 Hippocampal-targeted noninvasive stimulation alters objective memory for naturalistic episodesMelissa Hebscher¹, Joel Voss¹, ¹Northwestern University Feinberg School of Medicine

Topic Area: LONG-TERM MEMORY: Episodic

E70 Dissociable neural reinstatement of emotional memories in human PFCAugustin Hennings¹, Mason McClay¹, Jarrod Lewis-Peacock¹, Joseph Dunsmoor¹, ¹The University of Texas at Austin

Topic Area: LONG-TERM MEMORY: Episodic

E71 Mismatch negativity (MMN) predicts mnemonic specificity: A new metric for auditory pattern separationDeena Herman¹, Stevenson Baker², Jaime Cazes³, Claude Alain^{3,4}, R. Shayna Rosenbaum^{2,4}, ¹McMaster University, ²York University, ³University of Toronto, ⁴Rotman Research Institute

Topic Area: LONG-TERM MEMORY: Episodic

E72 Neural reactivation of mnemonic interference during associative memoryKyoungun Lee¹, Soroush Mirjalili¹, Brittany Corbett¹, Audrey Duarte¹, ¹Georgia Institute of Technology

Topic Area: LONG-TERM MEMORY: Episodic

E73 Coarse-grained event segmentation induces false memoryAedan Li¹, Audrey Huang¹, Morgan Barense¹, ¹University of Toronto

Topic Area: LONG-TERM MEMORY: Episodic

E74 How basic emotion categories and emotional congruency with context interacts to influence memoryMonika Riegel¹, Marek Wypych¹, Ma'gorzata Wierzba¹, Micha Szczepanik¹, Katarzyna Jednoróg¹, Artur Marchewka¹, Patrik Vuilleumier², ¹Nencki Institute of Experimental Biology, ²Swiss Centre for Affective Sciences/ University of Geneva

Topic Area: LONG-TERM MEMORY: Episodic

E75 The primacy of processing speed on episodic memory maintenance: A single-blind randomized trial assessing the effects ofRachael Romero¹, Dinesh K. Sivakolundu¹, Rahma Ahmed¹, Sheeva Shahinfar¹, Iman Popal¹, Dema Abdelkarim¹, Kathryn L. West¹, Bart Rypma¹, ¹University of Texas at Dallas

Topic Area: LONG-TERM MEMORY: Episodic

E76 Human MTL Neurons are Phase-locked to Hippocampal ThetaDaniel Schonhaut¹, Ashwin Ramayya¹, Ethan Solomon¹, Nora Herweg¹, Itzhak Fried², Michael Kahana¹, ¹University of Pennsylvania, ²University of California, Los Angeles

Topic Area: LONG-TERM MEMORY: Episodic

E77 Spatial memory activation patterns classify females but not males

Dylan Spets¹, Scott Slotnick¹, ¹Boston College
Topic Area: LONG-TERM MEMORY: Episodic

E78 Spatiotemporal analysis of a neural contiguity effect in episodic memory retrieval

Wei Tang^{1,2}, Zoran Tiganj³, Hesheng Liu⁴, Marc Howard³, ¹McLean Hospital, ²Harvard Medical School, ³Boston University, ⁴Medical University of South Carolina
Topic Area: LONG-TERM MEMORY: Episodic

E79 Word problems: An event-related potential study on remembering semantically related and unrelated words

Michael Weigl¹, Paula Mohr¹, Benjamin Palej¹, Julia Rafinski¹, Lukas Schmitt¹, Regine Bader¹, ¹Saarland University
Topic Area: LONG-TERM MEMORY: Episodic

E80 An ERP study of the beneficial effects of gesture on associative memory formation

Stanley West¹, Brianna Cairney¹, Heather Lucas¹, ¹Louisiana State University
Topic Area: LONG-TERM MEMORY: Episodic

E81 Enactment and Bizarreness Affect the Contribution of Familiarity and Recollection to Associative Recognition

Minfang Zhao¹, Hubert Zimmer², Xiaolan Fu³, ¹Huizhou University, ²Saarland University, ³Chinese Academy of Sciences
Topic Area: LONG-TERM MEMORY: Episodic

E82 Time cell population from various delays show similar structures

Rui Cao¹, Stephen Charczynski¹, Marc Howard¹, ¹Boston University
Topic Area: LONG-TERM MEMORY: Episodic

E83 Path integration using eye and hand movements

Anisha Khosla^{1,2}, Jennifer D. Ryan^{1,2}, Morris Moscovitch^{1,2}, ¹University of Toronto, ²Rotman Research Institute, Baycrest
Topic Area: LONG-TERM MEMORY: Other

E84 Distinct event-related potential and EEG oscillatory mechanisms of memory dysfunction in Mild Cognitive Impairment

Jiangyi Xia¹, Ali Mazaheri², Katrien Segaert², David Salmon³, Kimron Shapiro², Marta Kutas³, John Olichney¹, ¹University of California, Davis, ²University of Birmingham, ³University of California, San Diego
Topic Area: LONG-TERM MEMORY: Other

E85 The different contribution of different associations to visual predictions

Shira Baror¹, Moshe Bar¹, ¹Gonda Multidisciplinary Brain Research Center
Topic Area: LONG-TERM MEMORY: Priming

E86 Semantic Memory in Preclinical Alzheimer's disease

Nathaniel Klooster¹, David Wolk¹, Anjan Chatterjee¹, ¹University of Pennsylvania
Topic Area: LONG-TERM MEMORY: Semantic

E87 Effects of Openness to Experience on Semantic Memory Use: an ERP Study

Bing Li¹, Qiduo Lin¹, Hsu-Wen Huang¹, ¹City University of Hong Kong
Topic Area: LONG-TERM MEMORY: Semantic

E88 Targeted Memory Reactivation for Multiplication Problems During an Afternoon Nap

Adrianna M. Bassard¹, Ken A. Paller¹, ¹Northwestern University
Topic Area: LONG-TERM MEMORY: Skill Learning

E89 Data-driven classification of spectral profiles reveals brain region-specific plasticity

Christina Lubinus¹, Joan Orpella², Anne Keitel³, Helene Gudi-Mindermann⁴, Andreas K. Engel⁴, Brigitte Röder⁴, Johanna M. Rimmele¹, ¹Max-Planck-Institute for Empirical Aesthetics, ²New York University, ³University of Dundee, ⁴University Medical Center Hamburg-Eppendorf
Topic Area: METHODS: Electrophysiology

E90 Applying multivariate empirical mode decomposition to the analysis of broad-band EEG microstates

King-Hang Matthew Ma¹, Tan Lee¹, Manson Cheuk-Man Fong², William Shiyuan Wang², ¹The Chinese University of Hong Kong, ²The Hong Kong Polytechnic University
Topic Area: METHODS: Electrophysiology

E91 Hybrid structure-function connectome predicts crystallised and fluid cognition

Elvisha Dhamala¹, Keith W Jamison¹, Sarah M Dennis², Raihaan Patel³, M Mallar Chakravarty³, Amy Kuceyeski¹, ¹Weill Cornell Medicine, ²Sarah Lawrence College, ³McGill University
Topic Area: METHODS: Neuroimaging

E92 Assessing brain-wide TMS-evoked responses depending on ocular and oscillatory state: a simultaneous TMS-EEG-fMRI project

Shanice Janssens¹, Alexander Sack¹, Felix Duecker¹, Teresa Schuhmann¹, Tom de Graaf¹, ¹Maastricht University
Topic Area: METHODS: Neuroimaging

E93 Age-related differences in white matter: Comparing fixel-based and tensor-based analyses

Shannon Kelley¹, John Plass¹, Andrew Bender², Thad Polk¹, ¹University of Michigan, ²Michigan State University
Topic Area: METHODS: Neuroimaging

E94 Using mobile EEG to assess brain health and performance

Olav Krigolson¹, ¹University of Victoria
Topic Area: METHODS: Neuroimaging

E95 Brainstem Structural Alterations Correlates with Sleep Difficulty and Pain in Gulf War Illness Veterans

Yu Zhang¹, Andrei Vakhtin^{1,2}, Jessica Deitch¹, Jennifer Jennings¹, J. Wesson Ashford^{1,2}, Peter Bayley^{1,2}, Ansgar Furst^{1,2}, ¹WRIISC VA Palo Alto Health Care System, ²Stanford University
Topic Area: METHODS: Neuroimaging

E96 Default Mode Network Connectivity Response to Transcranial Magnetic Stimulation in Smokers: A Preliminary Evaluation

Nicholas Kearley¹, Nicole Petersen¹, Andrew Leuchter¹, Nathaniel Ginder¹, Reza Tadayon-Nejad¹, Jennifer Levitt¹, Jonathan Lee¹, David Krantz¹, Edythe London¹, ¹UCLA
Topic Area: METHODS: Other

E97 Longitudinal structural effects of electroconvulsive therapy in major depressive disorder

Sophie B. Sébille¹, Christopher J. Funes¹, Sofia Uribe¹, Tracy Barbour¹, Kristen K. Ellard¹, Joan A. Camprodon¹, ¹Division of Neuropsychiatry, MGH, Boston
Topic Area: NEUROANATOMY

E98 Differences in left fusiform gyrus morphometry in adults with dyslexia: Voxel- and surface-based analyses

Gabrielle-Ann Torre¹, Ja Young Choi², Terri Scott¹, Yaminah Carter¹, Tyler Perrachione¹, ¹Boston University, ²Harvard University
Topic Area: NEUROANATOMY

E99 The influence of reproductive stage on cerebellar network connectivity across adulthood

Hannah K. Ballard¹, Trevor B. Jackson¹, Jessica A. Bernard¹, ¹Texas A&M University
Topic Area: OTHER

E100 Two-way communication between dreamers and experimenters

Karen R. Konkoly¹, Ken A. Paller¹, ¹Northwestern University
Topic Area: OTHER

E101 A Possible Effect of the PICMOR Intervention Program on Regional Brain Volume in Older Adults

Hikaru Sugimoto¹, Mihoko Otake-Matsuura¹, ¹RIKEN Center for Advanced Intelligence Project
Topic Area: OTHER

E102 Directional brain-to-brain oscillation coupling reflects music ensemble leadership

Andrew Chang¹, Philip Chrapka¹, Dan Bosnyak¹, Laurel Trainor¹, ¹McMaster University
Topic Area: PERCEPTION & ACTION: Audition

E103 Hemispheric Specialization in Auditory Rhythm Processing

Daniel Comstock¹, Alejandra Santoyo¹, Ramesh Balasubramaniam¹, ¹University of California - Merced
Topic Area: PERCEPTION & ACTION: Audition

E104 The effect of aperiodic but predictable temporal regularity on pitch discrimination

Jesse Pazdera¹, Andrew Chang¹, Elger Baraku¹, Dan Bosnyak¹, Laurel Trainor¹, ¹McMaster University
Topic Area: PERCEPTION & ACTION: Audition

E105 Potential of Receptive Music Intervention on Mild Cognitive Impairment: A Resting-State fMRI Study

Diana Wang¹, Alex Belden², Maiya Geddes^{3,4}, Suzanne Hanser⁵, Manoj Bhasin⁶, Roger Burtonpatel², Psyche Loui², ¹Harvard University, ²Northeastern University, ³Brigham Women's Hospital, ⁴Harvard Medical School, ⁵Berklee College of Music, ⁶Emory University
Topic Area: PERCEPTION & ACTION: Audition

E106 What's next? Timing-based anticipation in children with Autism Spectrum disorder

Shlomit Beker¹, John J. Foxe², Sophie Molholm¹, ¹Albert Einstein College of Medicine, ²University of Rochester
Topic Area: PERCEPTION & ACTION: Development & aging

E107 The Effect of Context on Human Mirror System Integration in Action Understanding

Brandon Hager¹, Jennifer Gutsell¹, ¹Brandeis University
Topic Area: PERCEPTION & ACTION: Motor control

E108 Age-related declines in manual dexterity are associated with visuomotor tracking ability and white matter integrity

SHULAN HSIEH¹, Zai-Fu Yao², Meng-Heng Yang¹, ¹National Cheng Kung University, ²University of Amsterdam
Topic Area: PERCEPTION & ACTION: Motor control

E109 Intracranial stereotactic EEG study of crossmodal influences in human auditory cortex

Jyrki Ahveninen^{1,2}, Iiro P. Jääskeläinen³, Hsi-Jun Lee^{4,5}, Hsiang-Yu Yu^{6,7}, Cheng-Chia Lee^{6,7}, Chien-Chen Chou^{6,7}, Seppo P. Ahlfors^{1,2}, Wen-Jui Kuo⁷, Fa-Hsuan Lin^{4,5}, ¹Massachusetts General Hospital, ²Harvard Medical School, ³Aalto University School of Science, ⁴Sunnybrook Research Institute, ⁵University of Toronto, ⁶Taipei Veterans General Hospital, ⁷National Yang Ming Univ.
Topic Area: PERCEPTION & ACTION: Multisensory

E110 How action modulates the body model

Lara Coelho¹, Connor Way¹, Claudia Gonzalez¹, ¹University of Lethbridge
Topic Area: PERCEPTION & ACTION: Multisensory

E111 Hebbian associative plasticity shapes the motor resonance properties of the Mirror Neuron System

Giacomo Guidali¹, Nadia Bolognini¹, ¹University of Milano-Bicocca
Topic Area: PERCEPTION & ACTION: Other

E112 Formalizing Medial Temporal Lobe involvement in perception: From psychological constructs to function approximation

Tyler Bonnen¹, Daniel L. K. Yamins¹, Anthony Wagner¹, ¹Stanford University
Topic Area: PERCEPTION & ACTION: Vision

E113 Cardiac phase modulates endogenous and exogenous ERPs and HEP predicts awareness at the visual threshold

Juliane Britz¹, Viviana Leupin¹, Joanna Moret¹, ¹University of Fribourg
Topic Area: PERCEPTION & ACTION: Vision

E115 Uncovering a scene-defining feature using converging stimuli-based, behavioral and neural approaches

Ruu Harn Cheng¹, Daniel Dilks¹, ¹Emory University
Topic Area: PERCEPTION & ACTION: Vision

E115 Opposite lateralization for face recognition and gender perception

Ana Chkhaidze^{1,2}, Matthew Harrison², Zhiheng Zhou³, Samantha Lee², Lars Strother², ¹UCSD; ²University of Nevada, Reno, ³University of California, Davis
Topic Area: PERCEPTION & ACTION: Vision

E116 Unimpaired novel object recognition in developmental prosopagnosia

Regan Fry¹, Jeremy Wilmer², Joseph DeGutis¹, ¹Harvard Medical School, ²Wellesley College
Topic Area: PERCEPTION & ACTION: Vision

E117 Patients with hemispherectomies evince intact visual recognition behaviors

Michael C. Granovetter¹, Leah Ettensohn¹, Marlene Behrmann¹, ¹Carnegie Mellon University
Topic Area: PERCEPTION & ACTION: Vision

E118 Division of Labor and Coordination of the Face Network in Developmental Prosopagnosia and Controls

Xian Li^{1,2}, Joseph Arizpe^{1,2}, Mike Esterman^{1,2}, Joseph DeGutis^{1,2}, ¹Boston Attention & Learning Lab, ²Harvard Medical School
Topic Area: PERCEPTION & ACTION: Vision

E119 Dissociable Systems for Recognizing Places and Navigating through them: Causal and Developmental Evidence

Stephanie Wahab¹, Frederik Kamps², Sama Radwan², Daniel Dilks², ¹Medical College of Georgia, ²Emory University
Topic Area: PERCEPTION & ACTION: Vision

E120 The Primacy of Color in Visual Perception

Brian Zhang¹, Marjan Persuh¹, ¹BMCC, City University of New York
Topic Area: PERCEPTION & ACTION: Vision

E121 Resolving the credit assignment problem in cortico-basal ganglia pathways

Matthew Clapp¹, Catalina Vich², Kendra Noneman³, Jonathan Rubin⁴, Timothy Verstynen¹, ¹Carnegie Mellon University, ²Universitat de les Illes Balears, ³Boise State University, ⁴University of Pittsburgh
Topic Area: THINKING: Decision making

E122 Bifocal tDCS stimulation of the right and left DLPFC leads to asymmetrical effects on judgment and decision-making

Michael Lundie¹, Lauren Kim¹, Harshith Dasara¹, Daniel Krawczyk¹, ¹The University of Texas at Dallas
Topic Area: THINKING: Decision making

E123 Similarity-based episodic sampling processes in decision-making: A role of the hippocampus in memory-guided decisions

Seokyoung Min¹, Sanghoon Han¹, ¹Yonsei University
Topic Area: THINKING: Decision making

E124 Effects of Lysergic Acid Diethylamide in Representation-Mediated Learning in a Rat Model

Maxine Robinette¹, Leah Fleming², Jane Taylor², ¹California State University, Long Beach, ²Yale University
Topic Area: THINKING: Decision making

E125 Flexibility and Predictions in Autism: Findings from EEG, pupillometry, behavior, and computational modeling

SEYDANUR TIKIR¹, Dylan Festa¹, Michael J Crosse², Juliana Bates¹, Ruben Coen-Cagli¹, Sophie Molholm¹, ¹Albert Einstein College of Medicine, ²Google
Topic Area: THINKING: Decision making

E126 Visualizations of God: Differences in strength of religious belief influence representations of God

Emily Dyke¹, Adam Weinberger¹, Kathryn Johnson², Thomas Dameris¹, Ariana Mastrogiannis¹, Adam Green¹, ¹Georgetown University, ²Arizona State University
Topic Area: THINKING: Other

E127 The relationship between creativity and individual semantic network properties

Marcela Paola Ovando Tellez^{1,4}, Yoed Kenett², Mathias Benedek³, Emmanuelle Volle⁴, ¹Institut du Cerveau et de la Moelle épinière, ²University of Pennsylvania, ³University of Graz, ⁴Sorbonne University UMRS 1127, ICM, Inserm
Topic Area: THINKING: Other

E128 Overlapping neural responses to symbolic math and formal logic in the intra-parietal sulcus

Marina Bedny, Yun-Fei Liu¹, Shipra Kanjlia², ¹Johns Hopkins University, ²Carnegie Mellon University
Topic Area: THINKING: Problem solving

E129 A meta-analysis study on the process of deductive and inductive reasoning using Log-Gaussian Cox Processes

Minho Shin¹, Hyeon-Ae Jeon¹, ¹DGIST
Topic Area: THINKING: Reasoning

Session F

Tuesday, March 17, 8:00–10:00 am, Exhibit Hall C

F1 Distractor Reactivation with Age: Evidence for Cluttered Memory Representations

Tarek Amer¹, Joan Ngo², Lynn Hasher², ¹Columbia University, ²University of Toronto
Topic Area: ATTENTION: Development & aging

F2 The frontal aslant tract (FAT) white matter microstructure differentiates young children with ADHD from typical controls

Anthony Dick¹, Dea Garic¹, Paulo Graziano¹, ¹Florida International University
Topic Area: ATTENTION: Development & aging

F3 Potential biomarker for ASD: Reduced pupil responses to repeated multisensory stimuli in young children with autism

Jonathan Doyon¹, Ashley Darcy-Mahoney¹, Chynna Golding¹, Sarah Shomstein¹, Gabriela Rosenblau¹, ¹George Washington University
Topic Area: ATTENTION: Multisensory

F4 Multiple task set boundaries constrain the congruency sequence effect

Lauren Grant¹, Daniel Weissman¹, ¹University of Michigan
Topic Area: ATTENTION: Other

F5 High trait empathy promotes encoding of and attention to task-irrelevant facial expressions

Natsuka Katayama¹, Jun'ichi Katayama¹, ¹Kwansei Gakuin University
Topic Area: ATTENTION: Other

F6 Effects of cognitive training on neural measures of attention, working memory, and resting-state connectivity

Hannah Morgan¹, Teague Henry¹, Cassie Ford¹, Kathleen Gates¹, Joseph Hopfinger¹, ¹University of North Carolina at Chapel Hill
Topic Area: ATTENTION: Other

F7 RAGNAROC: A computational model to describe why attentional capture only occurs sometimes

Chloe Callahan-Flintoft¹, Brad Wyble², Gabriella Larkin¹, Michael Geuss¹, Alfred Yu¹, Chou Hung¹, ¹US Army Research Lab, ²Pennsylvania State University
Topic Area: ATTENTION: Spatial

F8 The Cognitive Effect in Epileptic Rats following Ellagic Acid Administration Using the Y-maze Model of Memory Test

Philemon Paul Mshelia¹, Nuhu Mohammed Danjuma², Rabi A. Magaji², Tavershima Dzenda², ¹Abubakar Tafawa Balewa University, ²Ahmadu Bello University
Topic Area: ATTENTION: Spatial

F9 Contiguous locations increase reliability of parietal maps

Summer Sheremata¹, Young Seon Shin¹, ¹Florida Atlantic University
Topic Area: ATTENTION: Spatial

F10 Neurodevelopment of Monetary and Social Reward Anticipation in Children and Adolescents

Tongran Liu¹, Di Wang¹, Jiannong Shi¹, ¹Chinese Academy of Sciences
Topic Area: EMOTION & SOCIAL: Development & aging

F11 Lateral Prefrontal Cortex-Amygdala Functional Connectivity at Rest Predicts Reappraisal Success Less in Later Adulthood

Parker Longwell¹, Youna Choi¹, Holly Laws¹, Bruna Martins-Klein¹, ¹University of Massachusetts, Amherst
Topic Area: EMOTION & SOCIAL: Development & aging

F12 fMRI of aesthetic experiences with landscape videos

Ilkay Isik¹, Edward A. Vessel¹, ¹Max Planck Institute for Empirical Aesthetics
Topic Area: EMOTION & SOCIAL: Emotional responding

F13 A critical role of the rTPJ in empathic and prosocial responses to sad and fearful events: a 1-Hz rTMS study

Shin Ah Kim¹, Jae Hyun Kim¹, Sang Hee Kim¹, ¹Korea University
Topic Area: EMOTION & SOCIAL: Emotional responding

F14 Predicting Depression from Speech Recordings: A Machine Learning and Feature Selection Approach

Siamak Sorooshyari¹, Thomas Van Vleet², Alit Stark-Inbar², Heather Dawes³, Deanna Wallace³, Morgan Lee³, Michael Merzenich², Edward Chang³, Mor Nahum⁴ ¹UC Berkeley, ²Posit Science, ³UC San Francisco, ⁴Hebrew University of Jerusalem
Topic Area: EMOTION & SOCIAL: Emotional responding

F15 Reframing anxiety: how domain anxieties affect performance on cognitive tasks framed as domain-specific

Griffin Colaizzi¹, Richard Daker¹, Ariana Mastrogiannis¹, Adam Green¹, ¹Georgetown University
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

F16 Does Threat of Shock Distinctively Modulates Reactive and Proactive Cognitive Control?

Salahadin Lotfi¹, Richard Ward¹, Madeline Rech¹, Maryam Ayazi¹, Christine Larson¹, Hanjoo Lee¹, ¹University of Wisconsin-Milwaukee
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

F17 Decreased Inhibitory Control Activity in Veterans with Post-Traumatic Stress Disorder (PTSD) during Emotion Regulation

Afadila Bruna Martins-Klein¹, Jasmeet P. Hayes², ¹University of Massachusetts-Amherst, ²The Ohio State University
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

F18 Joint Effects of Self-Referencing and Emotion on Memory in Aging and aMCI

Nishaat Mukadam¹, Katelyn Parisi^{1,2}, Eric Fields^{1,2}, Ryan Daley², Andrew Budson³, Elizabeth Kensinger², Angela Gutches¹, ¹Brandeis University, ²Boston College, ³VA Boston Healthcare System
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

F19 Aversive Distracter Words and Working Memory Filtering

Richard Ward¹, Sofia Mattson¹, Joseph Kornkven¹, Salahadin Lotfi¹, Han-Joo Lee¹, Christine Larson¹, ¹University of Wisconsin - Milwaukee
Topic Area: EMOTION & SOCIAL: Emotion-cognition interactions

F20 Neural Differences in Hypoactive Sexual Desire Disorder: An ERP Microstate Study

SungJun Cho¹, Wasuwat Siewsrichol¹, Stephanie Cacioppo¹, ¹University of Chicago
Topic Area: EMOTION & SOCIAL: Other

F21 Cortisol and Experiences of Discrimination Modulate Medial Temporal Lobe Structures in Older Adults

Michael Rosario¹, Amara Ayoub¹, Razan Alotaibi¹, Karin Schon¹, ¹Boston University School of Medicine
Topic Area: EMOTION & SOCIAL: Other

F22 Normalizing Anomalies with Mobile Exposure (NAME): A novel intervention for reducing implicit biases

Nadir Bilici¹, Clifford Workman¹, Stacey Humphries¹, Roy Hamilton¹, Anjan Chatterjee¹, ¹University of Pennsylvania
Topic Area: EMOTION & SOCIAL: Person perception

F23 Validating an fMRI task for assessing theory of mind in clinical populations: Neural response to and clinical correlates

Emily Dudek¹, Bridget Shovestul¹, Abhishek Saxena¹, J. Steven Lamberti¹, David Dodell-Feder¹, ¹University of Rochester
Topic Area: EMOTION & SOCIAL: Person perception

F24 Effects of interactive social context on visual attention to social partners

Ashley Frost¹, Nohely Gonzalez¹, Brynna Pechous¹, Katherine Warnell¹, ¹Texas State University
Topic Area: EMOTION & SOCIAL: Person perception

F25 Perspective taking reduces group biases in neural motor resonance

Jeremy Simon¹, Yanyi Jiang¹, ¹Brandeis University
Topic Area: EMOTION & SOCIAL: Person perception

F26 Large-scale Network Connectivity as a Predictor of Age: Evidence Across the Lifespan from the Cam-CAN Dataset

Meghan D Caulfield¹, Irene P Kan¹, Evangelia G. Chrysikou², ¹Villanova University, ²Drexel University
Topic Area: EXECUTIVE PROCESSES: Development & aging

F27 Age-related decline in resting state brain signal variability: Cause and Consequences

Poortata (Pia) Lalwani¹, Douglas Garrett², Thad Polk¹, ¹University of Michigan, Ann Arbor, ²Max Planck UCL
Topic Area: EXECUTIVE PROCESSES: Development & aging

F28 Dimensional Label Learning: A Building Block for Later Dimensional Attention

Kara Lowery¹, Bhoomika Nikam¹, Aaron Buss¹, ¹University of Tennessee
Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

F29 Contributions of task set inertia and task set preparation on voluntary task selection

Joseph M Orr¹, Michael J Imburgio¹, ¹Texas A&M University
Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

F30 Neural Processes Underlying Context-Sensitive Cognitive Flexibility Adjustments

Audrey Siqu-Liu¹, Tobias Egner¹, Marty Woldorff¹, ¹Duke University
Topic Area: EXECUTIVE PROCESSES: Goal maintenance & switching

F31 Changes in the Nature of Associations between Internalizing Symptoms and Inhibitory Control from 3 to 5 Years of Age

Caroline Howell¹, Brenna Martinez¹, Helen Day¹, Sophia Merelas¹, Rosalind J. Wright², Michelle Bosquet Enlow¹, ¹Boston Children's Hospital, ²Mount Sinai Hospital
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

F32 Reward prediction error is modulated by cooperation in group task

Chikara Ishii¹, Jun'ichi Katayama¹, ¹Kwansei Gakuin University
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

F33 Neurophysiological Responses in Prefrontal Regions Differ Between Musicians and Non-Musicians

Benjamin Schwartzmann¹, Prabhjot Dhani², Sylvain Moreno¹, Faranak Farzan¹, ¹Simon Fraser University, ²University of Toronto
Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

F34 Neural correlates of response inhibition in young children

Lauren Wade¹, Carolyn Rasmussen¹, Elizabeth daSilva^{1,2}, Columbus Bennett Bertenthal¹, ¹Indiana University, ²Purdue University

Topic Area: EXECUTIVE PROCESSES: Monitoring & inhibitory control

F35 The Central Executive Network in Schizophrenia: A Meta-Analysis of Structural and Functional MRI

Katrina Daigle¹, Malvina Pietrzykowski¹, Abigail Waters¹, Lance Swenson¹, David Gansler¹, ¹Suffolk University

Topic Area: EXECUTIVE PROCESSES: Other

F36 Learning Preferences as an Index of Individual Differences in Cognitive Flexibility

Hayley O'Donnell¹, Evangelia G Chryssikou¹, ¹Drexel University

Topic Area: EXECUTIVE PROCESSES: Other

F37 Selectively Reinforcing the Speed-Accuracy Trade-Off in Decision Making

Jonas Simoons¹, Senne Braem¹, Tom Verguts¹, ¹Ghent University

Topic Area: EXECUTIVE PROCESSES: Other

F38 Neuronal Networks Supporting Working Memory Shift With Stress

Alana Campbell¹, Sarah Glier¹, Austin Ferguson¹, Andrea Baldelli-Pelletier¹, Mae Yefimov¹, Peter Mucha¹, Aysenil Belger¹, ¹University of North Carolina at Chapel Hill

Topic Area: EXECUTIVE PROCESSES: Working memory

F39 Enhanced cortical activity after n-back working memory training: An event-related potential source localization study

Thomas Covey¹, Janet Shucard¹, Xuedi Wang¹, David Shucard¹, ¹University at Buffalo

Topic Area: EXECUTIVE PROCESSES: Working memory

F40 Sensory modality and information domain modulate behavioral and neural signatures of working memory interference

Justin Fleming¹, Michelle Njoroge², Abigail Noyce², Tyler Perrachione², Barbara Shinn-Cunningham³, ¹Harvard University, ³Carnegie Mellon University, ²Boston University

Topic Area: EXECUTIVE PROCESSES: Working memory

F41 Neural Mechanisms underlying Discrimination of Pitch Intervals: Effects of Interval Deviation and Interval Size

Fong Yi Guo¹, Chen-Gia Tsai¹, ¹NTU

Topic Area: EXECUTIVE PROCESSES: Working memory

F42 Cross-frequency coupled entrainment of EEG activity by transcranial alternative current stimulation

Byoung-Kyong Min^{1,2}, Ji-wan Kim^{1,2}, Hyun-Seok Kim¹, ¹Korea University, ²Inst. for Brain & Cognitive Engineering

Topic Area: EXECUTIVE PROCESSES: Working memory

F43 Microstructure in the posterior parietal cortex supports working memory function in 9-10-year-old children

Ilke Oztekin¹, Paulo Graziano¹, Anthony Dick¹, ¹Florida International University

Topic Area: EXECUTIVE PROCESSES: Working memory

F44 An investigation of verbal vs. tonal working memory using non-invasive brain stimulation

Mark Stern¹, Kaitlyn Fleming¹, Daniel Reinhuber¹, Kara Broussard¹, Karla Reyes-Fierros¹, Carmen Westerberg¹, Logan Trujillo¹, Rebecca Deason¹, ¹Texas State University

Topic Area: EXECUTIVE PROCESSES: Working memory

F45 Intrinsic and Task-Related Neural Differences in Adults with Dyslexia

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Topic Area: LANGUAGE: Development & aging

F46 Musical expertise offsets age-related decline in audiovisual speech in noise perception: Evidence from fMRI

Lei Zhang¹, Yi Du¹, ¹Chinese Academy of Sciences

Topic Area: LANGUAGE: Development & aging

F47 Images support novel word learning paired with novel meaning: An EEG study

Daisy Lei¹, Yushuang Liu¹, Janet Van Hell¹, ¹The Pennsylvania State University

Topic Area: LANGUAGE: Lexicon

F48 Cortical Sources of Visuo-spatially complex Hindi Language: a QEEG Study

Prashant Tayade¹, Ankit Gurjar¹, Suriya Prakash¹, Simran Kaur¹, Ratna Sharma¹, ¹All India Institute of Medical Sciences

Topic Area: LANGUAGE: Lexicon

F49 Examining the neurocognitive basis of reading fluency in children with dyslexia & comorbid dyslexia/ADHD

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Topic Area: LANGUAGE: Other

F50 Child and adult cortical selectivity for English and American Sign Language using fMRI

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Topic Area: LANGUAGE: Other

F51 Behavioral and Neural Signatures of Novel Language Learning

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Topic Area: LANGUAGE: Other

F52 L1 Morphological Typology Influences Patterns of Neural Activation for L2 Inflectional Processing: An fNIRS study

Danyang Wang¹, Sarah Wang¹, Benjamin Zinszer¹, Li Sheng¹, Kaja Jasinska¹, ¹University of Delaware

Topic Area: LANGUAGE: Other

F53 White matter pathways support dual routes for pre-reading in early childhood

Yingying Wang¹, ¹University of Nebraska-Lincoln

Topic Area: LANGUAGE: Other

F54 Acoustic entrainment of speech supports comprehension under moderate noise, but degrades under more severe adversity

Benjamin Zinszer¹, Qiming Yuan², Zhaoyi Zhang², Bharath Chandrasekaran³, Taomei Guo², ¹University of Delaware, ²Beijing Normal University, ³University of Pittsburgh

Topic Area: LANGUAGE: Other

F55 Distinct neural signatures of semantic retrieval and event updating during discourse comprehension

Trevor Brothers^{1,2}, Sophie Greene¹, Gina Kuperberg^{1,2}, ¹Tufts University, ²Massachusetts General Hospital
Topic Area: LANGUAGE: Semantic

F56 Bilateral Frontal Aslant Tract Association With Verbal Fluency in Young Children With and Without ADHD

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Topic Area: LANGUAGE: Semantic

F57 A graded effect of real-world plausibility on the N400 evoked by lexically unpredictable words

Sophie Greene¹, Trevor Brothers^{1,2}, Elizabeth Weber¹, Santiago Noriega¹, Gina Kuperberg^{1,2}, ¹Tufts University, ²Massachusetts General Hospital
Topic Area: LANGUAGE: Semantic

F58 Comprehension of spatially-related words relies on direction-specific processes in the spatial attention network

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Topic Area: LANGUAGE: Semantic

F59 The P600 as a measure of Implicit Knowledge in Artificial Grammar Learning

Sarah Alam¹, Yael Arbel², ¹Harvard University, ²MGH Institute of Health Professions
Topic Area: LANGUAGE: Syntax

F60 Evaluating Morpho-Syntactic Aspects of the Neural Working Memory Circuit

Emily Wood¹, William Matchin¹, ¹University of South Carolina
Topic Area: LANGUAGE: Syntax

F61 Test-retest consistency of hippocampal subfield volume measures in a developmental sample

Roya Homayouni¹, Qijing Yu¹, Sruthi Ramesh², Ana Daugherty¹, Noa Ofen¹, ¹Wayne State University, ²NYU Long Island School of Medicine
Topic Area: LONG-TERM MEMORY: Development & aging

F62 Concept organization in adults and young children

Erika Wharton-Shukster¹, Bradley Buchsbaum², Emily Onyshko¹, Amy Finn¹, ¹University of Toronto, ²Baycrest Hospital
Topic Area: LONG-TERM MEMORY: Development & aging

F63 Memory after hippocampal vs parahippocampal damage

Georgios P.D. Argyropoulos¹, Carola Dell'Acqua², Emily Butler¹, Clare Loane³, Adriana Roca-Fernandez¹, Azhaar Almozel⁴, Nikolas Drummond⁵, Carmen Lage-Martinez⁶, Elisa Cooper⁵, Richard N. Henson^{5,7}, Christopher R. Butler⁸, ¹University of Oxford, ²University of Padua, ³KCL, ⁴Cardiff University, ⁵University of Cambridge, ⁶University Hospital Marqués de Valdecilla, ⁷MRC CBU, ⁸Imperial College London
Topic Area: LONG-TERM MEMORY: Episodic

F64 Disassociations in the specificity of functional networks centered on hippocampus and VTA following exposure to novelty

Emily Cowan¹, Matthew Fain¹, Ian O'Shea², Vishnu Murty¹, ¹Temple University, ²Northeastern University
Topic Area: LONG-TERM MEMORY: Episodic

F65 Visual imagery absence in Aphantasia is associated with a reduced capacity to remember the past and imagine the future

Alexei Dawes¹, ¹University of New South Wales
Topic Area: LONG-TERM MEMORY: Episodic

F66 Reward-related memory benefits cannot be explained by post-encoding rehearsal

Matthew Fain¹, Arielle Tambini², Vishnu Murty¹, ¹Temple University, ²University of California Irvine
Topic Area: LONG-TERM MEMORY: Episodic

F67 Changes in neural activity across repeated retrievals of autobiographical memories

Lauri Gurguryan¹, Mathilde Rioux¹, Signy Sheldon¹, ¹McGill University
Topic Area: LONG-TERM MEMORY: Episodic

F68 Mnemonic discrimination in visual congruence context

Ariana Hedges-Muncy¹, Todd Winn¹, Brock Kirwan¹, ¹Brigham Young University
Topic Area: LONG-TERM MEMORY: Episodic

F69 Musical rhythm orchestrates neural activity and influences stimulus processing at specific moments in time

Paige Hickey¹, Annie Barnett Young¹, Aniruddh Patel¹, Elizabeth Race¹, ¹Tufts University
Topic Area: LONG-TERM MEMORY: Episodic

F70 ERP and Oscillatory Dynamics Differentiate Forget and Thought Substitution Cues in Intentional Forgetting

Ryan Hubbard¹, Lydia Jiang¹, Lili Sahakyan¹, ¹University of Illinois at Urbana-Champaign
Topic Area: LONG-TERM MEMORY: Episodic

F71 Whole brain ultrahigh resolution functional magnetic resonance imaging analysis of associative mnemonic processes

Stephanie Langella¹, Wei-Tang Chang¹, Weili Lin¹, Kelly Giovanello¹, ¹UNC-Chapel Hill
Topic Area: LONG-TERM MEMORY: Episodic

F72 Test Query Affects Late Frontal Event-Related Potentials (ERP) During Recognition Memory

P. Andrew Leynes¹, Max D'Amato¹, Andrea DeRosa¹, Lauren Hollowniczky¹, Brandon Jackson¹, Nadeen Kamel¹, Patrick Manning¹, Maya Nandy¹, Jessica Robinson¹, Camara Seals¹, Abigail Shvorin¹, Tanushi Upadhyay¹, ¹The College of New Jersey
Topic Area: LONG-TERM MEMORY: Episodic

F73 The reversion of information processing between episodic learning and retrieval across the adult lifespan

Seyedsoroush Mirjalili¹, Audrey Duarte¹, ¹Georgia Institute of Technology
Topic Area: LONG-TERM MEMORY: Episodic

F74 Did I see it? An event-related potential (ERP) study of material-specific prioritization of recollection

Arianna Moccia¹, Alexa Morcom¹, ¹University of Sussex
Topic Area: LONG-TERM MEMORY: Episodic

F75 ERP evidence of suppression and intrusions of autobiographical memories of past immoral acts

Akul Satish¹, Robin Hellerstedt¹, Michael Anderson², Zara Bergström¹, ¹University of Kent, ²MRC CBU, University of Cambridge
Topic Area: LONG-TERM MEMORY: Episodic

F76 Temporal dynamics supporting the multidimensional quality of episodic memory

Helen Schmidt¹, Rose A. Cooper¹, Maureen Ritchey¹, ¹Boston College
 Topic Area: LONG-TERM MEMORY: Episodic

F77 The diminishing precision of temporal information in episodic memory retrieval

John Scofield¹, Jeffrey Johnson¹, ¹University of Missouri
 Topic Area: LONG-TERM MEMORY: Episodic

F78 Multi-Step Prediction and Integration in Naturalistic Environments

Hannah Tarder-Stoll¹, Christopher Baldassano¹, Mariam Aly¹, ¹Columbia University
 Topic Area: LONG-TERM MEMORY: Episodic

F79 Neural measures of subsequent memory reflect endogenous variability in cognitive function

Christoph Weidemann¹, Michael Kahana², ¹Swansea University, ²University of Pennsylvania
 Topic Area: LONG-TERM MEMORY: Episodic

F80 Event boundaries shape memory formation: evidence from single unit recordings in humans

Jie Zheng, Andrea Gómez Palacio Schjetnan¹, Taufik Valiante¹, Adam Mamelak², Jeffrey Chung², Gabriel Kreiman³, Ueli Rutishauser², ¹Krembil Research Institute, University Health Network, ²Cedars-Sinai Medical Center, ³Boston Children's Hospital
 Topic Area: LONG-TERM MEMORY: Episodic

F81 Classifying EEG spectral features that predict subsequent memory performance across multiple sessions

David DiStefano¹, Elizabeth Race¹, ¹Tufts University
 Topic Area: LONG-TERM MEMORY: Other

F82 Differential Influence of Lesions to Ventromedial Prefrontal Cortex on Schema and Category Knowledge

Ariana Giuliano¹, Asaf Gilboa¹, Morris Moscovitch¹, Vanessa Ghosh¹, Kyra Bonasia¹, ¹University of Toronto & Rotman Research Institute
 Topic Area: LONG-TERM MEMORY: Other

F83 Cognitive biases linger after reading a transporting narrative

Buddhika Bellana¹, Christopher Honey¹, ¹Johns Hopkins University
 Topic Area: LONG-TERM MEMORY: Priming

F84 Cerebellum and semantic memory: a TMS study with the DRM task

Daniele Gatti¹, Giuliana Mazzoni², Floris Van Vugt¹, Tomaso Vecchi¹, ¹University of Pavia, ²Sapienza University Rome
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F85 Desirable difficulty in Learning from Errors

Eugenia Marin-Garcia¹, Yeray Mera¹, ¹University of the Basque Country
 Topic Area: LONG-TERM MEMORY: Semantic

F86 High and low-frequency cerebellar stimulations modulated the performance of procedural learning task

Yun Lien¹, Shang-Hua Lin¹, Ching-Po Lin¹, Li-Hung Chang¹, ¹National Yang-Ming University
 Topic Area: LONG-TERM MEMORY: Skill Learning

F87 Noninvasive stimulation frequency doubly dissociates cerebellar involvement in episodic memory ver linguistic prediction

Shruti Dave¹, Joel Voss¹, ¹Northwestern University

Topic Area: METHODS: Electrophysiology

F88 Rhythmic encoding improves recognition memory

Alexander Jones¹, Emma Ward¹; ¹Middlesex University London
 Topic Area: LONG-TERM MEMORY: Episodic

F89 Developmental changes of brain rhythms to naturalistic social and non-social stimuli in infants: an MEG study

Taylor Chiang¹, J. Christopher Edgar¹, Samantha Lam¹, Heather L. Green¹, Luke Bloy¹, Emily S. Kushner¹, Mina Kim¹, Jillian Lebus¹, Minhui Ouyang¹, Hao Huang¹, Timothy Roberts¹, Yuhan Chen¹, ¹Children's Hospital of Philadelphia
 Topic Area: METHODS: Neuroimaging

F90 Parcellating the social, cognitive, and motor topography of the cerebellum

Athanasia Metoki¹, Yin Wang², Haroon Popal¹, Nico Dosenbach³, Ingrid R. Olson¹, ¹Temple University, ²Beijing Normal University, ³Washington University School of Medicine
 Topic Area: METHODS: Neuroimaging

F91 Using fMRI to model nonlinear interactions between brain regions

Craig Poskanzer¹, Mengting Fang¹, Aidas Aglinskas¹, Stefano Anzellotti¹, ¹Boston College
 Topic Area: METHODS: Neuroimaging

F92 Predicting Cardiovascular Disease Risk Using Functional Connectivity and Structural Morphology Metrics

Amy Isabella Sentis¹, Javier Daparte¹, Peter J. Gianaros², Timothy Verstynen¹, ¹Carnegie Mellon University, ²University of Pittsburgh
 Topic Area: METHODS: Neuroimaging

F93 Relationship of mood, cognition and physical activity in Depression: Remote symptom monitoring using wearable technology

Nathan Cashdollar¹, Francesca Cormack¹, Maggie McCue², Caroline Skirrow¹, Jennifer Schuster², Nick Taptiklis¹, Emilie Glazer³, Elli Panagopoulos³, Tempest Van Shaik³, Ben Fehnert³, James King³, Jenny H Barnett¹, ¹Cambridge Cognition, ²Takeda Pharmaceuticals, ³CTRL Group
 Topic Area: METHODS: Other

F94 Pattern-based genome-wide relatedness analysis of human brain structure

Bingjiang Lyu¹, Kamen Tsvetanov¹, Lorraine Tyler¹, Alex Clarke¹, Else Eising², Simon Fisher², William Amos¹, ¹University of Cambridge, ²Max Planck Institute for Psycholinguistics
 Topic Area: METHODS: Other

F95 Volumetric MRI Analysis of Brain Areas in Patients with ANKS1B Neurodevelopmental Syndrome

Ilana Deyneko¹, Abigail Carbonell¹, Chang Hoon Cho¹, Ana Francisco¹, Douwe Horsthius¹, Bryen Jordan¹, Sophie Molholm¹, ¹Albert Einstein College of Medicine
 Topic Area: NEUROANATOMY

F96 Differences in Resting-State Midbrain Connectivity in Parkinson's Disease

Ian O'Shea¹, David Smith², Vishnu Murty², ¹Northeastern University, ²Temple University
 Topic Area: NEUROANATOMY

F97 Beyond Pavlov: Distinct Electrophysiological Responses to Aversive First-Order and Second-Order Conditioned StimuliPrateek Dhamija^{1, 2}, Lai Wong^{1, 2}, Asaf Gilboa^{1, 2}, ¹University of Toronto, ²Rotman Research Institute at Baycrest

Topic Area: OTHER

F98 Altered Resting-state Functional Connectivity Patterns Associated with Metabolic SyndromeBarnaly Rashid¹, Victoria Poole¹, Francesca Fortenbaugh², Michael Esterman², William Milberg², Regina McGlinchey², David Salat², Elizabeth Leritz², ¹Harvard Medical School, ²VA Boston Healthcare System

Topic Area: OTHER

F99 The Emergence of Early Sound Categorical Responses in the Human BrainBenjamin Lahner¹, Santani Teng^{1,2}, Matthew X. Lowe¹, Ian Charest³, Aude Oliva¹, Yalda Mohsenzadeh⁴, ¹MIT, ²SKERI, ³University of Birmingham, ⁴University of Western Ontario

Topic Area: PERCEPTION & ACTION: Audition

F100 Interpretable model based phonetic selectivity using high density μ ECoGSuseendrakumar Duraivel¹, Ken Chiang¹, Michael Trumpis¹, Charles Wang¹, Katrina Barth¹, Michael Haglund¹, Derek Southwell¹, Saurabh Sinha¹, Jonathan Viventi¹, Gregory Cogan², ¹Duke University

Topic Area: PERCEPTION & ACTION: Audition

F101 Implicit perceptual-motor learning of repeating auditory sequencesY. Catherine Han¹, Paul Reber¹, ¹Northwestern University

Topic Area: PERCEPTION & ACTION: Audition

F102 Transfer effects of musical training to speech salient temporal features: improved sensitivity to VOTMcNeel Jantzen¹, Rebecca Scheurich², KJ Jantzen¹, ¹Western Washington University, ²McGill University

Topic Area: PERCEPTION & ACTION: Audition

F103 The Stochastic Resonance model of auditory perception: a unified explanation of tinnitus and Zwicker tonePatrick Krauss¹, Achim Schilling¹, Holger Schulze¹, ¹University of Erlangen

Topic Area: PERCEPTION & ACTION: Audition

F104 Neural Resonance to Syncopated Rhythms: Model Predictions and Experimental TestsEdward Large¹, Yi Wei¹, ¹University of Connecticut

Topic Area: PERCEPTION & ACTION: Audition

F105 Caesarean-section birth is associated with atypical intrinsic functional connectivity of visual regions in adulthoodLily Solomon-Harris¹, Scott Adler¹, W. Dale Stevens¹, ¹York University

Topic Area: PERCEPTION & ACTION: Development & aging

F106 Visually guided movement with increasing Time-on-Task: Effects on movement preparation and movement executionÁRPÁD CSATHÓ¹, András Matuz¹, ¹University of Pécs

Topic Area: PERCEPTION & ACTION: Motor control

F107 Distinct causal contributions of DLPFC and M1 in long-term motor skill learning and performanceTaraz Lee¹, Quynh Nguyen¹, James Brissenden¹, Tyler Adkins¹, Katy Michon¹, ¹University of Michigan

Topic Area: PERCEPTION & ACTION: Motor control

F108 Neural correlates of the relation between body ownership and agency: a tDCS studyAngela Marotta¹, Massimiliano Zampini², Anna Re³, Mirta Fiorio¹, ¹University of Verona, ²University of Trento, ³University of Messina

Topic Area: PERCEPTION & ACTION: Multisensory

F109 Cross-modal or not cross-modal, that is the question: The study of aftereffect in variance perceptionSachiyo Ueda¹, Reiko Yakushijin², Akira Ishiguchi³, ¹Toyohashi University of Technology, ²Aoyama gakuin University, ³Ochanomizu University

Topic Area: PERCEPTION & ACTION: Multisensory

F110 Modulation of somatosensory interneural inhibition according to behavioral goal: going for overall gist or subtle detailIrena Arslanova¹, Keying Wang¹, Hiroaki Gomi², Patrick Haggard¹, ¹University College London, ²NTT Communication Science Laboratories

Topic Area: PERCEPTION & ACTION: Other

F111 The representation of micro-valences in high-level visual processing for everyday imagesLauren Chan¹, Elissa M. Aminoff¹, ¹Fordham University

Topic Area: PERCEPTION & ACTION: Vision

F112 Koniocellular Pathway Contributions to Saccadic and Manual Responses to Threat FacesKestas Kveraga^{1, 2}, Hee Yeon Im³, Noreen Ward², Reginald Adams Jr.⁴, ¹Harvard Medical School, ²Massachusetts General Hospital, ³Boston Children's Hospital, ⁴Penn State University

Topic Area: PERCEPTION & ACTION: Vision

F113 Culture and Spatial Frequency Impact Perceptual and Attentional ERP ComponentsTong Lin¹, Xin Zhang², Eric C Fields^{1, 3}, Robert Sekuler¹, Angela Gutches¹, ¹Brandeis University, ²Massachusetts Eye and Ear Infirmary, ³Boston College

Topic Area: PERCEPTION & ACTION: Vision

F114 Reorganization of functional connectivity does not obviously explain outcome post-lobectomyAnne Margarette Maallo¹, Erez Freud², Michael Granovetter¹, Marlene Behrmann¹, ¹Carnegie Mellon University, ²York University

Topic Area: PERCEPTION & ACTION: Vision

F115 Pre-stimulation phase modulates high-beta TMS entrainment effects on conscious visual perceptionAdrien Martel¹, Chloe Stengel¹, Monica Toba¹, Antoni Valero-Cabre¹, ¹Institut du Cerveau et de la Moelle Épineière (ICM)

Topic Area: PERCEPTION & ACTION: Vision

F116 Separating complex spatial perception from scene construction: fMRI and patient investigations of the hippocampusCornelia McCormick¹, Flavia De Luca², Ian A. Clark³, Peter Zeidman³, Marshall A. Dalton⁴, Goffredina Spano³, Thomas D. Miller⁵, Meher Lad⁶, Sinead L. Mullally⁶, Timothy D. Griffiths⁶, Clive R. Rosenthal⁷, Eleanor A. Maguire³, ¹University Medical School Bonn, ²University of Sussex, ³University College London, ⁴University of Sydney, ⁵Royal Free Hospital, UK, ⁶Newcastle University, ⁷University of Oxford

Topic Area: PERCEPTION & ACTION: Vision

F117 Novel objects in a rapid serial visual presentation (RSVP) stream elicit an attentional blinkRyan Mruczek¹, ¹College of the Holy Cross

Topic Area: PERCEPTION & ACTION: Vision

F118 Effect of stimulus properties and task on electrophysiological dynamics in the human visual word form area

Clara Sava-Segal¹, Andreas Rauschecker¹, Clara Sava-Segal¹, Su Liu¹, Ren Na², Omri Raccach¹, Josef Parvizi¹, ¹Stanford University, ²Peking University
Topic Area: PERCEPTION & ACTION: Vision

F119 The 1-second boundary in time perception is a function of temporal processing windows

Franklenin Sierra¹, David Poeppel², Alessandro Tavano¹, ¹Max Planck Institute for Empirical Aesthetics, ²New York University
Topic Area: PERCEPTION & ACTION: Vision

F120 The Effects of Sleep on Neural Learning Signals

Mathew Hammerstrom¹, Wande Abimbola¹, Chad Williams¹, Olav Krigolson¹, ¹University of Victoria
Topic Area: THINKING: Decision making

F121 A spatio-temporal analysis on neural correlates of intertemporal choice

Qingfang Liu¹, Woojong Yi¹, Brandon Turner¹, ¹The Ohio State University
Topic Area: THINKING: Decision making

F122 Variability in delay discounting is related to anhedonia in individuals exposed to multiple adverse childhood experience

Elizabeth Olson^{1,2}, Kevin Frederiks¹, Tate Overbey¹, Isabelle Rosso^{1,2}, ¹Mclean Hospital, ²Harvard Medical School
Topic Area: THINKING: Decision making

F123 Uncovering the use of decision heuristics in a complex, uncertain environment: an eye-tracking study

Ramiro Eduardo Rea Reyes¹, Youngbin Kwak¹, ¹University of Massachusetts, Amherst
Topic Area: THINKING: Decision making

F124 The influence of positive and negative incentives on physical effort persistence

Yue Zhang¹, Xiamin Leng¹, Amitai Shenhav¹, ¹Brown University
Topic Area: THINKING: Decision making

F125 Neuropsychological Outcomes of Children Under Three Treated with Proton Radiation Therapy

Safia Elyounssi¹, Sarah Burstein², Brendan Pulsifer³, Matthew Jerram¹, Casey Evans^{2,4}, ¹Suffolk University, ²Massachusetts General Hospital, ³Bowdoin College, ⁴Harvard Medical School
Topic Area: THINKING: Other

F126 The relationship between macroscale cortical motifs and distinct patterns of ongoing thoughts

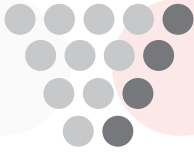
Brontë Mckeown¹, Hao-Ting Wang², Will Strawson², Jonathan Smallwood¹, ¹University of York, ²University of Sussex
Topic Area: THINKING: Other

F127 Facilitating problem solving with targeted memory reactivation during in-lab overnight sleep

Kristin Sanders¹, Kara Dastrup¹, Lane Patterson¹, Anjan Ghosh¹, Ken Paller¹, Mark Beeman¹, ¹Northwestern University
Topic Area: PERCEPTION & ACTION: Vision

F128 Religiosity is associated with less prediction of the typical: an event-related brain potential study

Michael Kiang¹, Justice Cupid², Sarah Ahmed¹, Jennifer Lepock¹, Todd Girard², ¹University of Toronto, ²Ryerson University
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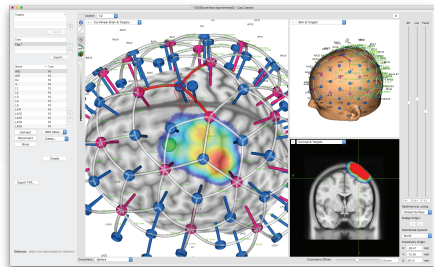
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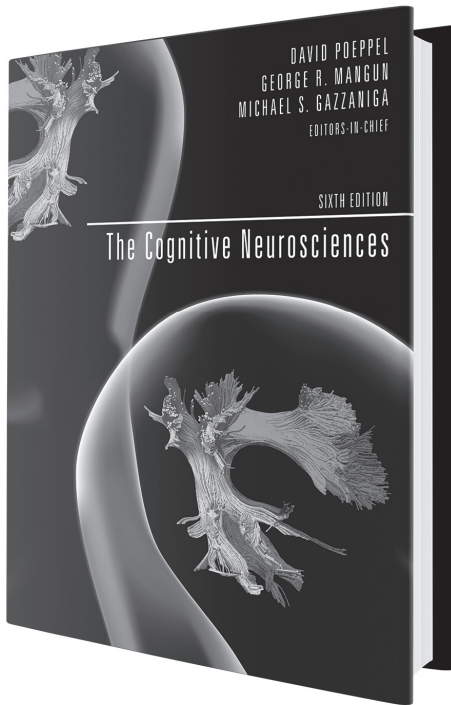


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