



NeuroGateways 2024 Symposium

April 11th-12th
Regions Field

Thursday, April 11

8:00am - 8:30am **Welcome and Opening Remarks**

8:30am - 9:30am **Keynote Address: Insights into Human Cognition from Intracranial Recordings** Bob Knight, MD, UC-Berkeley

Session #1 - NeuroData

9:30am - 10:00am **Stimulation Driven Biomarkers of Neural Signal Propagation in Developing Human Brain Networks**
Dora Hermes Miller, PhD, Mayo Clinic

10:00am - 10:30am **LivaNova: Research Partnerships to Impact Patient Outcomes**
Shauna Garris, PharmD, LivaNova

10:30am - 10:40am **Break**

10:40am - 11:10am **NIH and BRAIN Initiative Opportunities for Neurotechnology Development and Translation**
Nick Langhals, NIH BRAIN Initiative Program Manager

11:10am - 11:25am **Virtual and Physical Electrical Stimulation to Understand Epileptic Brain Networks**
Rachel Smith, PhD, Univ. of Alabama at Birmingham

11:25am - 11:40am **Spinal Cord Stimulation for Restless Legs Syndrome: Current evidence and justification of the NO RLS Study**
Marshall Holland, MD, Univ. of Alabama at Birmingham





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Thursday, April 11th Session #1 - NeuroData

11:40am - 12:10pm

Trainee Presentations

11:40am - 11:50am

Neural Circuits Underlying Estrous Cycle Regulation of State-Dependent Emotional Memory

Nina Baumgartner, Univ. of Alabama at Birmingham

11:50am - 12:00pm

Co-Activation Patterns are Linked to Cognition Across Schizophrenia and First-Degree Relatives from the Psychosis Human Connectome Project

George Ling, Univ. of Alabama at Birmingham

12:00pm - 12:10pm

Dynamics of Dominant Default Mode Network Linked to Processing Speed in Cognitively Healthy Oldest-Old Hannah Cowart, Univ. of Alabama at Birmingham

12:10pm - 1:00pm

Lunch

12:30pm - 1:00pm

Neuroimaging of the Future Powered by AI
Jing Zhang, PhD, GE Healthcare





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Thursday, April 11th Session #2 - NeuroModulation

1:00pm - 1:30pm **Cerebellar Deep Brain Stimulation for Acquired Brain Injuries**

Ken Baker, PhD, Cleveland Clinic

1:30pm - 2:00pm **Stereo-electroencephalography as a Tool to Characterize Brain Circuitry for Novel Stimulation Therapies**

Kai Miller, MD, PhD, Mayo Clinic

2:00pm - 2:10pm **Break**

2:10pm - 2:25pm **Hemispheric Effects of Unilateral Subthalamic Deep Brain Stimulation and Verbal Fluency**

Harrison Walker, MD, Univ. of Alabama at Birmingham

2:25pm - 2:40pm **The Role of Subthalamic Beta Band Activity in Sensory Processing**

Zach Irwin, PhD, Univ. of Alabama at Birmingham

2:40pm - 2:55pm **Ethical Issues in Neuromodulation**

Joshua May, PhD, Univ. of Alabama at Birmingham





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Thursday, April 11th Session #2 - NeuroModulation

3:00pm - 3:30pm **Trainee Presentations**

3:00pm - 3:10pm **Adaptive Control Involves Oscillatory Dynamics in Human Prefrontal Cortex**

Anas Khan, Univ. of Alabama at Birmingham

3:10pm - 3:20pm **Intracranial Recordings of Cognitive Control during Conflict Trials and its Progress towards Brain Mapping: A Systematic Review**

Garrett Thrash, Univ. of Alabama at Birmingham

3:20pm - 3:30pm **Causal Evidence for the Network Involved in Theory of Mind**

Kaitlyn Davis, Univ. of Alabama at Birmingham

3:30pm - 5:00pm **Poster Session and Hors d'Oeuvres**





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8:30am - 9:30am **Keynote Address: Motor Neuroprosthetics for Controlling Hand Movement**
Cindy Chestek, PhD, University of Michigan

Session #3 - NeuroRehabilitation

9:30am - 10:00am **Advancing Sensory Neuroprosthetics**
Loren Reith, PhD, West Virginia University

10:00am - 10:30am **Emergent Non-surgical Brain-Machine Interfaces for Assaying Neural Synchronization and Neuromodulation**
Jose Contreras-Vidal, PhD, Univ. of Houston

10:30am - 10:40am **Break**

10:40am - 10:55am **Bridging the Gap: Exercise as a Key Component in Neurorehabilitation**
Jereme Wilroy, PhD, Univ. of Alabama at Birmingham

10:55am - 11:10am **Decoding Semantic and Syntactic Aspects of Language from the Brain**
Matt Nelson, PhD, Univ. of Alabama at Birmingham

11:10am - 11:25am **The Role of Cognitive Training in Maintaining/Rehabilitating Brain Health: the Resulting Long-term Impact on Everyday Function and Quality of Life**
Karlene Ball, PhD, Univ. of Alabama at Birmingham





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Friday, April 12th Session #3 - NeuroRehabilitation

- 11:25am - 11:55am **Trainee Presentations**
- 11:25am - 11:35am **A More Inclusive IoT Ecosystem with Brain Computer Interfaces**
Juan Jose Gonzalez Espana, Univ. of Houston
- 11:35am - 11:45am **Brain Communication and Neural Dynamics during Dance Performance through EEG, Hyperscanning and Mobile Brain-Body Imaging Techniques**
Maxine Annel Pacheco-Ramírez, Univ. of Houston
- 11:45am - 11:55am **Closed-Loop Approaches to Cognitive Training for Enhancing Processing Speed**
Ashton Weber, Univ. of Alabama at Birmingham
- 12:00pm - 12:30pm **Round Table Discussion: Barriers in Neuroengineering**
- 12:00pm - 1:00pm **Lunch - Discussion of Controversies**
Announcement of Presentation Winners & Pilot Awardees
Closing Remarks

