<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00 a.m.</td>
<td>Registration, Continental Breakfast and Exhibits</td>
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<tr>
<td>7:30</td>
<td>Introduction and Welcome – Dr. Freeman</td>
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<td>Opening Remarks to Neuroscience Speakers – Dr. Petrucelli</td>
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<tr>
<td>7:45</td>
<td>What Are we Learning about Gut-Brain Microbiome: The Universe Within</td>
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<td></td>
<td>John Fryer, PhD</td>
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<tr>
<td>8:15</td>
<td>Neuro-Inflammatory Pathways and New Targets</td>
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<td>LongJun Wu, PhD</td>
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<td>8:45</td>
<td>Center for Regenerative Medicine: Neuroscience Update</td>
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<td>Guojun Bu, PhD</td>
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<td>9:15</td>
<td>Genetics of the Future &amp; $100 Genome: What does it Mean for Medicine?</td>
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<td>Owen Ross, PhD</td>
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<tr>
<td>9:45</td>
<td>Q&amp;A</td>
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<tr>
<td>10:00</td>
<td>Break and Exhibits</td>
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<tr>
<td>10:20</td>
<td>MRI Machine-Learning Detection of Brain Tumor Genotypes</td>
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<td>Brad Erickson, MD, PhD</td>
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<tr>
<td>10:50</td>
<td>NIH BRAIN Initiative Part 1: Neuromodulation-Brain Machine Interfacing</td>
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<td>Funding Opportunities and Examples</td>
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<td></td>
<td>Kari Ashmont, PhD</td>
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<td>Katja Brose, PhD</td>
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<tr>
<td>11:55am</td>
<td>Q&amp;A</td>
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<tr>
<td>12:10</td>
<td>Lunch</td>
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<tr>
<td>1:00</td>
<td>Aging Science-Update from Mayo Clinic Kogod Center</td>
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<td>James Kirkland, MD, PhD</td>
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<tr>
<td>1:30</td>
<td>NIH BRAIN Initiative Part 2: BRAIN Research Highlights in 2019 and by</td>
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<td>2023</td>
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<td>Nick Langhals, PhD, NIH BRAIN Program Director</td>
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<tr>
<td>2:00</td>
<td>Chronic Traumatic Encephalopathy</td>
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<td>Rodolfo Savica, M.D., Ph.D</td>
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<td>2:30</td>
<td>Q&amp;A Theme #1: Bench to Bedside Translation: What is the Next Quantum</td>
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<td>Quarter Jump Forward? Q&amp;A</td>
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<td>Session Panelists- Owen Ross, Ph.D, Katja Brose, PhD, Margaret Suther</td>
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<td>land, James Kirkland, MD, Ph.D</td>
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<tr>
<td>3:00</td>
<td>Q&amp;A</td>
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<tr>
<td>3:15</td>
<td>ePosters- Neuroscience Laboratory Team Science E-Presentations</td>
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<tr>
<td>4:30</td>
<td>Adjourn</td>
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Program schedule is subject to change without notice
**Friday – November 8, 2019**  
**Brain Machine Interfaces and Neuroscience**  
**Moderator: Kevin Bennet, PhD**

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>7:30 a.m.</td>
<td>Continental Breakfast and Exhibits</td>
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<tr>
<td>7:55</td>
<td>Introduction, Welcome and Speaker Introductions – Dr Bennet</td>
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<tr>
<td>8:00</td>
<td>Neurostimulation Devices for Neurological Disorders-Deep Brain Stimulation – Kendall H. Lee, MD, PhD</td>
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<tr>
<td>8:30</td>
<td>Spinal Cord Stimulation Neuromodulation/rehabilitation for Paraplegia – Kristin Zhao, PhD</td>
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<tr>
<td>9:00</td>
<td>Brain-Machine Interfacing Epilepsy Systems – Jamie Van Gompel, MD</td>
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<tr>
<td>9:30</td>
<td>Chronic Headache Disorders, New CGRP Medications, and Neuromodulation (Vagal Nerve, Sphenopalatine Ganglion, and Trigeminal Nerve) – Amal Starling, MD</td>
</tr>
<tr>
<td>10:00</td>
<td>Q&amp;A</td>
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<tr>
<td>10:15</td>
<td>Break</td>
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<tr>
<td>10:30</td>
<td>Artificial Intelligence, Internet of Things (IoT), and Democratizing Global Health Care via Interoperability at Value: The National Academies of Medicine Roadmap – Meredith Karney, MHA, Center for Medical Interoperability</td>
</tr>
<tr>
<td>11:00</td>
<td><strong>Keynote:</strong> Cybernetic Neural Interfacing for Human Regeneration – Professor Yoshiyuki Sankai, CEO Cyberdyne</td>
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<tr>
<td>11:45</td>
<td>Q&amp;A</td>
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<tr>
<td>12:00 p.m.</td>
<td>Lunch</td>
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<tr>
<td>1:00 – 1:30</td>
<td>Multiple Sclerosis and Demyelinating Diseases: Global Challenges – Mark Keegan, MD, Division Head, Demyelinating disorders Mayo Clinic</td>
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<tr>
<td>1:30 - 2:00</td>
<td><strong>Q&amp;A Theme #2: Neural Engineering Update- NINDS BRAIN initiative and Challenges – Y. Sankai, PhD, Kari Ashmont, PhD, Kendall Lee, MD, PhD, Kristin Zhao PhD, Moderator: Kevin Bennet, PhD</strong></td>
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<tr>
<td>2:00 - 2:30</td>
<td><strong>Q&amp;A Theme #3: Artificial Intelligence/Machine Learning &amp; Neuroscience: Dennis Murphree, PhD, Che Ngufor, Ph.D, Dr. Hongfang Liu, Moderator: W. D. Freeman, MD</strong></td>
</tr>
<tr>
<td>2:30 -3:00</td>
<td>Adjourn general sessions to e-Poster/e-Presentations – Moderator: W. D. Freeman, MD, Neuroimaging Moderator – Hector Robles MD</td>
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<td>3:00</td>
<td>Adjourn</td>
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## Saturday- November 9, 2019

**NeuroCircuitry, Neuro Rehabilitative & Human Behavior**  
**Moderators:** Mike Pizzi, DO, PhD, Kevin Barrett, MD, Nicole Avalon-PA-C and Amelia Mantione, RN

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<tr>
<td>8:15</td>
<td>Introduction and Welcome and Speaker Introductions: Moderator: Nicole Avalon-PA-C</td>
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<tr>
<td>8:30</td>
<td>Can Artificial Intelligence Reduce Bias by Kahneman &quot;Thinking Fast and Slow&quot; Principles? Brynn Dredla, MD</td>
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<tr>
<td>9:00</td>
<td>Will Androids Dream of Electric Sheep: The Importance of Sleep for Global Health? Pablo Castillo, MD</td>
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<tr>
<td>9:30</td>
<td>Music and the Brain Phil Tipton, MD</td>
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<tr>
<td>10:00</td>
<td>Break</td>
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<tr>
<td>10:15</td>
<td>Art, The Brain &amp; Schizophrenia- VanGogh &amp; Madness Chris Lachner, MD</td>
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<tr>
<td>10:45</td>
<td><strong>Keynote:</strong> Convergence Neuroscience:- A Global Call to Action Rodrigo Ramos Zuniga, MD</td>
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<tr>
<td>11:45</td>
<td>Morning Speaker Panelist Q&amp;A</td>
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<tr>
<td>12:00</td>
<td>Adjourn</td>
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