

# Cognition Decision & Computational Intelligence Program Meeting

Dr. Jay Myung | January 28-February 1, 2013 | Washington, DC

## Ronald Regan Building and International Trade Center

1300 Pennsylvania Ave NW, Washington, DC 20004

### AGENDA - Day 1 - Monday, January 28, 2013

| TIME        | TITLE OF PROJECT  | SPEAKER  |
|-------------|---|--|
| 8:00-8:30   | <b>REGISTRATION</b>   |  |
| 8:30-9:00   | <a href="#">Towards Understanding Robust Individual &amp; Collaborative Monitoring</a>  | <b>Christopher Myers,</b><br>Air Force Research Laboratory (AFRL)            |
| 9:00-9:30   | <a href="#">Motivations and Goals in Developing Integrative Models of Human Cognition</a>                                     | <b>Glenn Gunzelmann,</b><br>Air Force Research Laboratory (AFRL)             |
| 9:30-10:00  | <a href="#">Statistical Machine Learning for Structured and High Dimensional Data</a>   | <b>Larry Wasserman (by J Lafferty)</b><br>Carnegie Mellon University         |
| 10:00-10:30 | <b>BREAK</b>  |  |
| 10:30-11:00 | <a href="#">Collaborative Research: Developing, Testing and Validating Brain Alignment Algorithm using Geometric Analysis</a> | <b>Hanna Damasio (by Zhong-Lin Lu),</b><br>University of Southern California |
| 11:00-11:30 | Collaborative Research: Developing, Testing and Validating Brain Alignment Algorithm using Geometric Analysis                 | <b>Shing-Tung Yau,</b><br>Harvard University                                 |
| 11:30-12:00 | <a href="#">The Information is in the Maps</a>  | <b>Leonidas Guibas,</b><br>Stanford University                               |
| 12:00-1:30  | <b>LUNCH</b>  |  |
| 1:30-2:00   | Modeling Spatial Maps Inspired by the Hippocampal System  | <b>Kechen Zhang,</b><br>Johns Hopkins University                             |
| 2:00-2:30   | <a href="#">What is Where's Influence on Visual Memory?</a>   | <b>Robert Sekuler,</b><br>Brandeis University                                |
| 2:30-3:00   | <a href="#">Fast, Flexible, Rational Inductive Inference</a>  | <b>Tom Griffiths,</b><br>University of California, Berkeley                  |
| 3:00-3:30   | <b>BREAK</b>  |  |
| 3:30-4:00   | <a href="#">Learning Representation and Control in Markov Decision Processes</a>  | <b>Sridhar Mahadevan,</b><br>University of Massachusetts                     |
| 4:00-4:30   | <a href="#">Learning Multisensory Representations</a>   | <b>Robert Jacobs,</b><br>University of Rochester                             |
| 4:30-5:00   | <b>PM BRIEFING</b>  |  |
| 5:00        | <b>ADJOURNED FOR THE DAY</b>  |  |

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## AGENDA - Day 2 - Tuesday, January 29, 2013

| TIME        | TITLE OF PROJECT  | SPEAKER   |
|-------------|---|---|
| 8:00-8:30   | <b>REGISTRATION</b>   |   |
| 8:30-9:00   | <a href="#">An Integrated Neuroscience and Engineering Approach to Classifying Human Brain-States</a>                                 | <b>Adrian Lee,</b><br>University of Washington                                      |
| 9:00-9:30   | Biology of Memristor Minds  | <b>Leon Chua,</b><br>University of California, Berkeley                             |
| 9:30-10:00  | <a href="#">Fundamental Mechanisms of NeuroInformation Processing: Inverse Problems and Spike Processing</a>                          | <b>Aurel Lazar,</b><br>Columbia University  |
| 10:00-10:30 | <b>BREAK</b>  |   |
| 10:30-11:00 | Visual Depth Perception from Motion through Texture Accretion and Deletion: A Neural Model of Figure-Ground Segregation and Occlusion | <b>Ennio Mingolla,</b><br>Northeastern University                                   |
| 11:00-11:30 | Systems of Neuromorphic Adaptive Plastic Scalable Electronics (SyNAPSE): Philosophy and Progress                                      | <b>Narayan Srinivasa,</b><br>HRL  |
| 11:30-12:00 | Hippocampus: from Neurons to Function   | <b>Giorgio Ascoli,</b><br>George Mason University                                   |
| 12:00-1:30  | <b>LUNCH</b>  |   |
| 1:30-2:00   | <a href="#">Machine Understanding of Implicit Human Intention</a>   | <b>Soo-Young Lee,</b><br>Korea Advanced Institute of Science and Technology (KAIST) |
| 2:00-2:30   | <a href="#">Investigating Architectures of Neuromorphic Computing for Motion Perception, Sense-Making and Event Prediction</a>        | <b>Qing Wu,</b><br>Air Force Research Laboratory (AFRL)                             |
| 2:30-3:00   | <a href="#">A Distributed Representation of Remembered Time</a>   | <b>Marc Howard,</b><br>Boston University  |
| 3:00-3:30   | <b>BREAK</b>  |   |
| 3:30-4:00   | <a href="#">Bio-Inspired Computation: Clock-Free, Grid-Free, Scale-Free and Symbol-Free</a>   | <b>Janet Wiles,</b><br>University of Queensland                                     |
| 4:00-4:30   | Modeling Feedback in the Ventral Pathway  | <b>Yuriy Luzanov,</b><br>Air Force Research Laboratory (AFRL)                       |
| 4:30-5:00   | <b>PM BRIEFING</b>  |   |
| 5:00        | <b>ADJOURNED FOR THE DAY</b>  |   |

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### AGENDA - Day 3 – Wednesday, January 30, 2013

| TIME        | TITLE OF PROJECT   | SPEAKER   |
|-------------|--|---|
| 8:00-8:30   | <b>REGISTRATION</b>  |   |
| 8:30-9:00   | <a href="#">Physio-Behavioral Synchronicity in a Cooperative Team Task: Contributors and Relations</a>   | <b>Gregory Funke,</b><br>Air Force Research Laboratory (AFRL)                 |
| 9:00-9:30   | <a href="#">Modeling the Functional Architecture of Human Decision Making</a>  | <b>Robert Patterson,</b><br>Air Force Research Laboratory (AFRL)              |
| 9:30-10:00  | <a href="#">A Proposal to Perform New Theoretical and Experimental Research on Human Efficiency through Developments within Systems Factorial Technology</a> | <b>James Townsend,</b><br>Indiana University                                  |
| 10:00-10:30 | <b>BREAK</b>   |   |
| 10:30-11:00 | <a href="#">Sequential Sampling Models of Adaptive Human Decision-Making</a>   | <b>Michael Lee (by J Vandekerckhove),</b><br>University of California, Irvine |
| 11:00-11:30 | <a href="#">The Structure of Mental Processing As Revealed by ROC Curves</a>   | <b>Jeffrey Rouder,</b><br>University of Missouri                              |
| 11:30-12:00 | <a href="#">Learning Effective Representations for Dynamic Tasks</a>   | <b>Matt Jones,</b><br>University of Colorado                                  |
| 12:00-1:30  | <b>LUNCH</b>   |   |
| 1:30-2:00   | <a href="#">Robust Coordination of Autonomous Systems</a>  | <b>Brian Williams,</b><br>Massachusetts Institute of Technology               |
| 2:00-2:30   | <a href="#">The Cognitive and Computational Modeling of Team Problem Solving for Decision Making Under Complex and Dynamic Conditions</a>                    | <b>Jonathan Cagan,</b><br>Carnegie Mellon University                          |
| 2:30-3:00   | <a href="#">Algorithms for Learning and Decision Making</a>  | <b>Dimitri Bertsekas,</b><br>Massachusetts Institute of Technology            |
| 3:00-3:30   | <b>BREAK</b>   |   |
| 3:30-4:00   | <a href="#">Frames in Compressive Sensing and Approximate Signal Recovery Pertaining to Physical Sensing Matrices</a>  | <b>Peter Casazza,</b><br>University of Missouri                               |
| 4:00-4:30   | <a href="#">Global Extreme Solutions to a Class of Challenging/NP-Hard Problems in Nonconvex/Discrete Systems</a>  | <b>David Gao,</b><br>University of Ballarat                                   |
| 4:30-5:00   | <a href="#">Sensor Data Integrity and Mitigation of Perceptual Failures</a>  | <b>Thierry Peynot,</b><br>University of Sydney                                |
| 5:00        | <b>ADJOURNED FOR THE DAY</b>   |   |

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## AGENDA - Day 4 - Thursday, January 31, 2013

| TIME        | TITLE OF PROJECT  | SPEAKER  |
|-------------|---|--|
| 8:00-8:30   | <b>REGISTRATION</b>   |  |
| 8:30-9:00   | <a href="#">A Dynamic Approach to Information Sampling and Learning</a>   | <b>Brad Love,</b><br>University of Texas, Austin   |
| 9:00-9:30   | <a href="#">Computational Cognitive Neuroscience Modeling of Sequential Skill Learning</a>                                    | <b>Todd Maddox,</b><br>University of Texas, Austin   |
| 9:30-10:00  | <a href="#">Similarity and Features in Categorization: A Unified Machine Learning Framework</a>                               | <b>Jun Zhang,</b><br>University of Michigan  |
| 10:00-10:30 | <b>BREAK</b>  |  |
| 10:30-11:00 | <a href="#">Great Computational Intelligence in the Formal Sciences via Integration of Analogical and Deductive Reasoning</a> | <b>Selmer Bringsjord,</b><br>Rensselaer Polytechnic Institute                                    |
| 11:00-11:30 | <a href="#">Applications of Quantum Probability Theory to Dynamic Decision Making</a>   | <b>Jerome Busemeyer,</b><br>Indiana University   |
| 11:30-12:00 | <a href="#">Modeling Behavioral and Decision Behavior through Systems of Observers</a>  | <b>Louis Narens,</b><br>University of California, Irvine   |
| 12:00-1:30  | <b>LUNCH</b>  |  |
| 1:30-2:00   | <a href="#">A Unified Architectural Approach to the Hybrid Mixed Challenge of Situation Assessment and Prediction</a>         | <b>Paul Rosenbloom,</b><br>University of Southern California                                     |
| 2:00-2:30   | <a href="#">Creating Long-Lived Learning Software Collaborators</a>   | <b>Ken Forbus,</b><br>Northwestern University  |
| 2:30-3:00   | <a href="#">Extending Semantic and Episodic Memory to Support Robust Decision Making</a>                                      | <b>John Laird,</b><br>University of Michigan   |
| 3:00-3:30   | <b>BREAK</b>  |  |
| 3:30-4:00   | <a href="#">Lifelong Optimisation</a>   | <b>Toby Walsh,</b><br>National Information and<br>Communications Technology Australia<br>(NICTA) |
| 4:00-4:30   | A Graph Theoretic Model for Response Time and Accuracy  | <b>Leslie Blaha,</b><br>Air Force Research Laboratory (AFRL)                                     |
| 4:30-5:00   | <b>PM BRIEFING</b>  |  |
| 5:00        | <b>ADJOURNED FOR THE DAY</b>  |  |

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## AGENDA - Day 5 - Friday, February 1, 2013

| TIME        | TITLE OF PROJECT  | SPEAKER  |
|-------------|---|--|
| 8:00-8:30   | <b>REGISTRATION</b>   |  |
| 8:30-9:00   | Identification of Sources of Interday Variability                               | <b>James Christensen,</b><br>Air Force Research Laboratory (AFRL)                    |
| 9:00-9:30   | <a href="#">Intelligence in the Now: Robust Intelligence in Complex Domains</a> | <b>Leslie Kaelbling (by T Lozano-Perez)</b><br>Massachusetts Institute of Technology |
| 9:30-10:00  | Semi-Supervised Discriminative Structured Prediction                            | <b>Shaojun Wang,</b><br>Wright State University                                      |
| 10:00-10:30 | <b>BREAK</b>  |  |
| 10:30-11:00 | <a href="#">Apprenticeship Learning for Robotic Control</a>                     | <b>Pieter Abbeel,</b><br>University of California, Berkeley                          |
| 11:00-11:30 | <a href="#">Bio-Inspired Human-Level Machine Learning</a>                       | <b>Byoung-Tak Zhang,</b><br>Seoul National University                                |
| 11:30-12:00 | <a href="#">Contextually Aware Autonomous Robots</a>                            | <b>Reid Simmons,</b><br>Carnegie Mellon University                                   |
| 12:00       | <b>ADJOURNED FOR THE WEEK</b>   |  |