

# 2021 Computational Cognition & Machine Intelligence Program Review

Dr. Hal Greenwald | November 8-10, 2021 | Virtual

## Agenda Day 1 | November 8, 2021 ~ Times US Eastern

| Time                                 | Topic  | Speaker  |
|--------------------------------------|--|--|
| 8:45                                 | Zoom Login   |  |
| 9:00                                 | Opening Remarks  | Hal Greenwald, Program Officer, Computational Cognition & Machine Intelligence |
| 9:15                                 | Explaining the Space of Plans                                | Martim Brandao (PI: Amanda Coles), King's College London                       |
| 9:45                                 | Adversarial Multi-Unit Planning                              | Brayden Hollis, AFRL/RI  |
| 10:15                                | Learning to Plan in Hybrid Spaces                            | Leslie Kaelbling, MIT  |
| 10:45                                | <b>BREAK</b>   |  |
| 11:00                                | Learning in Large-scale Models of Biological Cognition       | Chris Eliasmith, University of Waterloo  |
| 11:30                                | Choosing a Direction: Neural Models of Decision Making       | Roger Mailler, University of Tulsa   |
| 12:00                                | Exploiting Memristors and the Local Activity Principle       | Leon Chua, UC Berkeley   |
| 12:30                                | <b>Lunch/Networking in Wonder</b>                            |  |
| 13:30                                | Discovering Optimal Strategies for Bounded Agents            | Tom Griffiths, Princeton/UC Berkeley   |
| 14:00                                | Flexible and Resilient Autonomous Systems                    | Katia Sycara, Carnegie Mellon University                                       |
| 14:30                                | Testing a Common Model for Human and Human-Like Intelligence | Andrea Stocco, University of Washington  |
| 15:00                                | Discussion: Human Cognition & Machine Intelligence           | Facilitator: Tom Griffiths, Princeton  |
| <b>MEETING ADJOURNED FOR THE DAY</b> |  |  |

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## Agenda Day 2 | November 9, 2021 ~ Times US Eastern

| Time                                 | Topic   | Speaker   |
|--------------------------------------|---|---|
| 8:45                                 | <b>Zoom Login</b>   |   |
| 9:00                                 | Visual Perception and Reasoning: Integrating Cognitive Programs, Working Memory, Attention Control and Visual Processing  | John Tsotsos, York University                                 |
| 9:30                                 | Empowering the Problem Solving Team through a Computer-human Partnership  | Jonathan Cagan, Carnegie Mellon University                    |
| 10:00                                | Optimizing Autonomous and Human-Assisted Experimentation in Materials Development   | Mark Pitt, Ohio State University                              |
| 10:30                                | <b>Coffee/Networking in Wonder</b>  |   |
| 11:00                                | (YIP) Towards Preference-Aware Autonomy: Specification, Synthesis, and Interactive Planning                               | Jie Fu, Worcester Polytechnic Institute/University of Florida |
| 11:30                                | Reasoning for Social Autonomous Agents; Towards Software Apprentices that Learn in Dynamic Domains                        | Ken Forbus, Northwestern University                           |
| 12:30                                | <b>Lunch/Networking in Wonder</b><br><i>Reserved area in Wonder for graduate students &amp; postdocs organized by UVA</i> |   |
| 13:30                                | Counterfactuals and Multiple Rewards: Inducing and Explaining Good Team Behavior for Effective Agent-Human Teaming        | Kagan Tumer, Oregon State University                          |
| 14:00                                | Implicit Communication in Human-Machine Collaboration   | Anca Dragan, UC Berkeley                                      |
| 14:30                                | (YIP) Supporting Information Foraging by Utilizing Agents' Collective Foraging Behavior                                   | Sandeep Kuttal, University of Tulsa                           |
| 15:00                                | Discussion: Machine Learning  | Facilitator: Leslie Kaelbling, MIT                            |
| <b>MEETING ADJOURNED FOR THE DAY</b> |   |   |

# 2021 Computational Cognition & Machine Intelligence Program Review

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## Agenda Day 3 | November 10, 2021 ~ Times US Eastern

| Time                     | Topic   | Speaker  |
|--------------------------|---|--|
| 8:45                     | <b>Zoom Login</b>   |  |
| 9:00                     | (YIP) Active Formalization in Artificial and Human Reasoners  | John Licato, University of South Florida               |
| 9:30                     | Automatically Inferring Human Machine Interaction Properties and Predicting and Adapting to their Violation   | Sebastian Elbaum, UVA                                  |
| 10:00                    | A Human-machine Symbiotic System for the Extraction of High-level Behaviors from a Macroscopic View of Swarms | Panos Artemiadis, University of Delaware/Arizona State |
| 10:30                    | <b>Coffee/Networking in Wonder</b>  |  |
| 11:00                    | Toward Cognitive Realism in Game Theoretic Models of Social Behavior  | Alan Wagner, Penn State University                     |
| 11:30                    | Applications of Quantum Probability Theory to Human-machine Communication Networks                            | Jerome Busemeyer, Indiana University                   |
| 12:00                    | Great Computational Intelligence, Mature and Further Applied  | Selmer Bringsjord, Rensselaer Polytechnic Institute    |
| 12:30                    | <b>Lunch/Networking in Wonder</b>   |  |
| 13:30                    | Networked Nonlinear Decision-Making: Opportunism, Explanations, and Learning Echo-Chambers                    | Eugene Santos, Dartmouth                               |
| 14:00                    | Interactive Task Learning   | John Laird, University of Michigan                     |
| 14:30                    | (DURIP) Humanoid Robotics Platform for Investigating the Sensorimotor Basis of                                | George Konidakis, Brown University                     |
| 15:00                    | Discussion  |  |
| <b>MEETING ADJOURNED</b> |   |  |