

Workshop I: Analyzing High-dimensional Traces of Intelligent Behavior

Monday September 23, 2024

- 8:00–8:55 *Check-in/Breakfast (hosted by IPAM)*
- 8:55–9:00 *Welcome and Opening Remarks*
- 9:00 *SESSION CHAIR: Jacob Foster*
- 9:00–9:50 **Peter Todd** (Indiana University Bloomington)
Traces of search in space and mind
- 10:00–10:15 *Break*
- 10:15–11:05 **Simon Garnier** (New Jersey Institute of Technology)
Of Swarms and Slimes: Intelligence Beyond – and Without – the Brain
- 11:15–11:30 *Break*
- 11:30–12:20 **Robert Hawkins** (Stanford University)
Scaling cognitive science to understand the dynamics of social interaction in naturalistic settings
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *SESSION CHAIR: Jacob Foster*
- 2:30–3:20 **Ilker Yildirim** (Yale University)
Reverse-engineering neural and cognitive representations with multilevel computational theories
- 3:30–4:00 *Break*
- 4:00–4:50 **Dan Yamins** (Stanford University)
How the Vision System Might Have Arisen
- 5:00–5:15 *Lightning Poster Session*
- 5:15–6:30 *Poster Session & Reception (Hosted by IPAM)*

Tuesday September 24, 2024

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *SESSION CHAIR: Ida Momennejad*
- 9:00–9:50 **Kelsey Allen** (Google)
Physical problem-solving across timescales
- 10:00–10:15 *Break*

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- 10:15–11:05 **Judith Fan** (Stanford University)
Cognitive tools for making the invisible visible
- 11:15–11:30 *Break*
- 11:30–12:20 **Deanna Needell** (University of California, Los Angeles (UCLA))
Towards Fairer-ness and transparency in Machine Learning
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *SESSION CHAIR: Ida Momennejad*
- 2:30–3:20 **Omayra Ortega** (Sonoma State University)
The Mathematics of Mathematics (#MetaMath): An Introduction and Some Examples
- 3:30–4:00 *Break*
- 4:00–4:50 **Michael Murray** (University of California, Los Angeles (UCLA))
Characterizing transitions between benign, tempered and no-overfitting

Wednesday September 25, 2024

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *SESSION CHAIR: Max Kleiman-Weiner*
- 9:00–9:50 **Jacob Foster** (Indiana University Bloomington)
Death and dreams in low dimensions: Methods for discovering pattern and structure in cultural traces
- 10:00–10:15 *Break*
- 10:15–11:05 **Daniel McNamee** (Champalimaud Foundation)
Studies on strong intuitive reasoning in human experts
- 11:15–11:30 *Break*
- 11:30–12:20 **Dora Biro** (Rochester Institute of Technology)
Virtual Talk: Scaling up from individual to collective cognition
- 12:30–12:45 *Group Photo*
- 12:45–2:30 *Lunch (on your own)*
- 2:30 *SESSION CHAIR: Max Kleiman-Weiner*
- 2:30–3:20 **Ida Momennejad** (Microsoft Research)
Evaluation and architectures of intelligence in humans, LLMs, and generative AI for games
- 3:30–4:00 *Break*
- 4:00–4:50 **Xue-Xin Wei** (University of Texas at Austin)
Learning and Inference with Prior Knowledge

Thursday September 26, 2024

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *SESSION CHAIR: Peter Todd*
- 9:00–9:50 **Joel Leibo** (DeepMind Technologies)
Studying the behavior of generative AI-based agents in multi-agent systems
- 10:00–10:15 *Break*
- 10:15–11:05 **Max Kleiman-Weiner** (University of Washington)
Reverse-Engineering Human Cooperation
- 11:15–11:30 *Break*
- 11:30–12:20 **Tobias Gerstenberg** (Stanford University)
Counterfactual simulation in causal cognition
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *SESSION CHAIR: Peter Todd*
- 2:30–3:20 **Cynthia Flores** (California State University, Channel Islands (CSU Channel Islands))
From Materials to Minds: Nonlocal Approaches to Damage and Degeneration
- 3:30–4:00 *Break*
- 4:00–4:50 **Gregory Beylkin** (University of Colorado Boulder)
On algorithms in high dimensions

Friday September 27, 2024

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *SESSION CHAIR: Cynthia Flores*
- 9:00–9:50 **James Evans** (University of Chicago)
Diversity, Disconnection, Discord, and Other Properties of Collective Intelligence
- 10:00–10:15 *Break*
- 10:15–11:05 **Natalia Velez** (Princeton University)
Games as a window into large-scale social phenomena
- 11:15–11:30 *Break*

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- 11:30–12:20 **James Pascoe** (Drexel University)
Beyond physical maze solvers via modern portfolio theory
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *SESSION CHAIR: Cynthia Flores*
- 2:30–3:20 **Stanislav Minsker** (University of Southern California (USC))
New performance guarantees for Tukey's median

