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

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