

Workshop IV: Modeling Multi-Scale Collective Intelligences

Monday November 18, 2024

- 8:00–8:55 *Check-in/Breakfast (hosted by IPAM)*
- 8:55–9:00 *Welcome and Opening Remarks*
- 9:00 *Moderator: Pranab Das*
- 9:00–9:50 **Vishwesh Guttal** (Indian Institute of Science)
Stochasticity and collective escape responses in moving animal groups
- 10:00–10:15 *Break*
- 10:15–11:05 **Ahmed El Hady** (University of Konstanz)
Mechanistic theory of social foraging
- 11:15–11:30 *Break*
- 11:30–12:20 **Danai Papageorgiou** (University of Bristol)
Social structure, collective decision-making and responses to inequality in animal societies
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *Moderator: Pranab Das*
- 2:30–3:20 **Orit Peleg** (University of Colorado Boulder)
emergent Spatiotemporal Patterns in Insect Swarms
- 3:30–4:00 *Break*
- 4:00–4:50 **Iain Couzin** (Max Planck Institute of Animal Behavior)
Cognitive collectives
- 5:00–5:15 *Lightning Poster Session*
- 5:20–6:30 *Poster Session & Reception (Hosted by IPAM)*

Tuesday November 19, 2024

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Moderator: Erica Cartmill*
- 9:00–9:50 **Bernard Chazelle** (Princeton University)
New Tools for Analyzing Collective Behavior
- 10:00–10:15 *Break*

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- 10:15–11:05 **Joshua Tan** (University of Oxford)
Composing games into complex institutions
- 11:15–11:30 *Break*
- 11:30–12:20 **Conor Heins** (Verses)
Collective behavior from surprise minimization
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *Moderator: Erica Cartmill*
- 2:30–3:20 **Daniel Blair** (Georgetown University)
Dynamic Mechanical Phases in Active and Passive Fluids
- 3:30–4:00 *Break*
- 4:00–4:50 *Discussion Session*

Wednesday November 20, 2024

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Moderator: Govind Menon*
- 9:00–9:50 **Richard Mann** (University of Leeds)
Social information and rational disagreement
- 10:00–10:15 *Break*
- 10:15–11:05 **Montasir Abbas** (Virginia Tech)
On the Road to Collective Intelligence with the Green Light SONATA
- 11:15–11:30 *Break*
- 11:30–12:20 **Alice Schwarze** (Dartmouth College)
Planned behavior, perceptual biases, and the dynamics of collective action
- 12:30 *Group Photo*
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *Moderator: Govind Menon*
- 2:30–3:20 **James Marshall** (University of Sheffield)
Negative feedback as a noise suppression mechanism in collective foraging
- 3:30–4:00 *Break*
- 4:00–4:50 **Adria LeBoeuf** (University of Cambridge)
Metabolic division of labor creates organismal cohesion

Thursday November 21, 2024

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Moderator: Iain Couzin*
- 9:00–9:50 **Govind Menon** (Brown University)
Does life compute?
- 10:00–10:15 *Break*
- 10:15–11:05 **Rebecca Schulman** (Johns Hopkins University)
Building chemical operating systems for materials and chemistry with synthetic biochemical reactions
- 11:15–11:30 *Break*
- 11:30–12:20 **Santosh Manicka** (Tufts University)
How might multiscale collectives 'collect' across scales?
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *Moderator: Iain Couzin*
- 2:30–3:20 **Nikta Fakhri** (Massachusetts Institute of Technology)
Broken Symmetries in Living Matter
- 3:30–4:00 *Break*
- 4:00–4:50 **Albert Kao** (University of Massachusetts Boston)
Social influence and the emergence of collective intelligence in pigeon flocks

Friday November 22, 2024

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Moderator: Jacob Foster*
- 9:00–9:50 **Joshua Vogelstein** (Johns Hopkins University)
It's about time: learning in a dynamic world
- 10:00–10:15 *Break*
- 10:15–11:05 **Dalal Alharthi** (University of Arizona)
A Collective Intelligence Framework for Cloud Security
- 11:15–11:30 *Break*

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11:30–12:20 **Robert Batterman** (University of Pittsburgh)
Deep Learning, Correlations, and the Statistics of Natural Images

12:30–2:30 *Lunch (on your own)*

2:30 *Session Chair: TBA*

2:30–3:20 *TBA*

