

Sunday, March 18

- 3:00 pm Check-in
- 6:00 pm Reception (*Lobby*)
- 7:00 pm Dinner (*Dining Room*)
- 8:00 pm Perspective Talk**
Iain Couzin, Max Planck Institute for Ornithology & University of Konstanz
Collective sensing and decision-making in animal groups
- 9:00 pm Refreshments available at Bob's Pub

NOTE:
Meals are in the **Dining Room**
Talks are in the **Seminar Room**
Posters are in the **Lobby**

Monday, March 19

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Welcome & Introduction**
- 9:10 am Session 1**
Chair: Kirstin Hagelskjaer Petersen
- 9:10 am **Gilles J. Laurent**, Max Planck Institute for Brain Research
Transient dynamics in neural system
- 9:35 am **Karel Svoboda**, Janelia Research Campus/HHMI
Distributed collective computation in the mammalian brain
- 10:00 am **Mark Shein-Idelson**, Tel-Aviv University
A dragon's view on collective computations
- 10:15 am **Aleena R. Garner**, Friedrich Miescher Institute for Biomedical Research
The role of long range projections in sensory cortex during associative learning
- 10:30 am Break
- 11:00 am Session 2**
Chair: Albert Kao
- 11:00 am **Amy LaViers**, University of Illinois at Urbana-Champaign
On expressive robotic systems (aka dancing robots)
- 11:25 am **Rebecca DeFronzo**, Draper Labs
Cooperative systems in polymorphic soft robotics and insects
- 11:50 am **Dongsung Huh**, Salk Institute for Biological Studies
Gradient descent for spiking neural networks
- 12:05 pm **Asghar Razavi**, Weill Cornell Medical College of Cornell University
Allosteric networks in biological systems
- 12:20 pm Lunch (*service ends at 1pm*)
- 2:00 pm Session 3**
Chair: Naomi Leonard
- 2:00 pm **Deborah M. Gordon**, Stanford University
The ecology of collective behavior

- 2:25 pm **Ricard Solé**, Universitat Pompeu Fabra
Liquid brains, solid brains
- 2:50 pm **Scott Turner**, SUNY College of Environmental Science & Forestry
Homeostasis as an organizing principle of social cognition
- 3:15 pm Break
- 3:45 pm Session 4**
Chair: Ricard Solé
- 3:45 pm **Gasper Tkacik**, Institute of Science and Technology Austria
Towards a unified theory of efficient, predictive, and sparse coding
- 4:10 pm **Elad Schneidman**, Weizmann Institute of Science
Information socialtaxis and efficient collective behavior emerging in groups of information-seeking agents
- 4:35 pm **Elizabeth Davison**, Princeton University
Dynamics and synchronization patterns in networks of heterogeneous nonlinear neuronal oscillators
- 4:50 pm Break
- 5:05 pm Poster Blitz I (3 min / 3 slides each)**
- Haron Abdel-Raziq**, Cornell University
Daniel Bath, Max Planck Institute for Ornithology
Stephane Deny, Stanford University
Asaf Gal, Rockefeller University
Jacob Graving, Max Planck Institute for Ornithology
Andrew Hartnett, Disney Research
Lyle Kingsbury, University of California, Los Angeles
Renato Pagliara, Princeton University
Sarah Park, Children's Hospital of Philadelphia
Sam Reiter, Max Planck Institute for Brain Research
Vivek Sridhar, Max Planck Institute of Ornithology
Yaofeng (Desmond) Zhong, Princeton University
- 5:45 pm Poster Reception
- 7:15 pm Dinner
- 8:15 pm Refreshments available at Bob's Pub

Tuesday, March 20

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 5**
Chair: Iain Couzin
- 9:00 am **Heiko Hamann**, University of Lübeck
Poker with demons: From micro-guesses to macro-patterns
- 9:25 am **Roderich Gross**, The University of Sheffield
Computation-free swarming and Turing Learning
- 9:50 am **Matteo Mischiati**, Janelia Research Campus
Analyzing and controlling ensemble properties of a collective: a geometric approach
- 10:05 am Break
- 10:35 am Session 6**
Chair: Deborah Gordon
- 10:35 am **Surya Ganguli**, Stanford University
TBD
- 11:00 am **Shaul Druckmann**, Stanford University
Interpreting population activity: Single units, ensembles, or modes?
- 11:25 am **Shyla Hardwick**, University of California, Los Angeles
Collective cultural evolution
- 11:40 am **Vidya Raju**, University of Maryland, College Park
Replicator control systems
- 11:55 am **Kyle Harrington**, University of Idaho
Evolution of genetically-regulated swarming strategies
- 12:10 pm Lunch (*service ends at 1pm*)
- 1:00 pm Tour (*optional – meet at reception*)

- 2:15 pm** **Session 7**
Chair: Gasper Tkacik
- 2:15 pm **Nicholas T. Ouellette**, Stanford University
Probing the collective response of animal aggregations
- 2:40 pm **Nir S. Gov**, Weizmann Institute of Science
Collective conflict resolution in groups on the move
- 3:05 pm **Anna Dornhaus**, University of Arizona
Optimal search with communication: Social insect collective strategies
- 3:20 pm **Matthew Lutz**, Max Planck Institute for Ornithology
Growth of self-assembled structures in army ants as a form of distributed proportional control
- 3:35 pm Break
- 4:05 pm** **Discussion**
- 4:45 pm** **Poster Blitz II** (3 min / 3 slides each)
- Joseph Bak-Coleman**, Princeton University
Nassime Blin, University of Illinois at Urbana–Champaign
Oren Forkosh, Max Planck Institute of Psychiatry
Alex Gomez-Marin, Instituto de Neurociencias de Alicante
Udit Halder, University of Maryland, College Park
Maxinder Kanwal, University of California, Berkeley
Jubal Kurudamannil, University of Illinois Urbana-Champaign
Gerald Pao, Salk Institute for Biological Studies
Jacob Peters, Harvard University
Mattia Serra, Harvard University
ShyamSrinivasan, Salk Institute for Biological Studies & Kavli Institute
- 5:30 pm Poster Reception
- 7:00 pm Dinner
- 8:00 pm Refreshments available at Bob’s Pub

Wednesday, March 21

- 7:30 am Breakfast (*service ends at 8:45am*)
- 9:00 am Session 8**
Chair: Shaul Druckmann
- 9:00 am **Nils Napp**, SUNY at Buffalo
Partial order theory for exploiting physical constraints during distributed assembly
- 9:25 am **Naomi Leonard**, Princeton University
Distributed decision-making in explore-exploit tasks
- 9:50 am **Kirstin Hagelskjaer Petersen**, Cornell University
Design of robot collectives
- 10:15 am Break
- 10:45 am Session 9**
Chair: Elad Schneidman
- 10:45 am **Hirokazu Shirado**, Yale University
The intelligence of unintelligent agents: Hybrid systems of human and bots optimize coordination in experimental social networks
- 11:10 am **Albert Kao**, Harvard University
Collective computation and exploration in slime molds
- 11:35 am **Orit Peleg**, University of Colorado Boulder
Collective mechanical adaptation in honeybee swarms
- 11:50 am Closing Discussion**
- 12:15 pm Conclusion / Final Remarks
- 12:20 pm Lunch and Departure (*Lunch service ends at 1pm*)
- 12:30 pm First shuttle to Dulles
1:30 pm Second shuttle to Dulles
2:30 pm Last shuttle to Dulles