Wednesday, June 27

1:30 pm  Invited Speaker 1 – Introduction: Terry Sejnowski
Charles Schroeder, Nathan S. Kline Institute, Orangeburg, NY
Neuronal ensemble dynamics underlying attentional selection

2:15 pm  Howard Poizner (30 min)
Oscillation-based neural maps for space in humans

2:45 pm  Session 1 – Yale – Chair: Dinu Albeanu
Thierry Emonet (30 min)
Olfactory receptor neurons encode odor-specific dynamics independently of intensity

Steve Zucker (15 min)
Modeling surface inferences in visual cortex

Alberto Bernacchia (15 min)
Decision-making with extreme time constants

3:45 pm  Break

4:00 pm  Session 2 – NYU – Chair: Richard Andersen
Robert Shapley (30 min)
The laminar distribution of gamma-band and spike activity in V1 cortex: theoretical implications

I-Chun Lin (15 min)
Integrate-and-fire vs Poisson models of LGN input to V1 Cortex: noisier inputs reduce orientation selectivity

Adi Rangan (30 min)
Emergent dynamics in a network model of the visual cortex

Gemma Huguet (15 min)
A model for dynamical switching in tristable perception for visual plaids

5:30 pm  Rishidev Chaudhuri (30 min)
The timescales of large-scale brain circuit dynamics

6:00 pm  Dinner Buffet

6:30 pm  Poster Session and Reception – SDSC Foyer and Synthesis Center
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 pm</td>
<td>End of Wednesday’s program</td>
</tr>
<tr>
<td><strong>Thursday, June 28</strong></td>
<td></td>
</tr>
<tr>
<td>8:00 am</td>
<td><strong>Breakfast</strong></td>
</tr>
<tr>
<td>8:30 am</td>
<td><strong>Invited Speaker 2 – Introduction: Ken Miller</strong></td>
</tr>
<tr>
<td></td>
<td>Astrid Prinz, Emory University, Atlanta, GA</td>
</tr>
<tr>
<td></td>
<td><em>Homeostasis in a pattern-generating circuit</em></td>
</tr>
<tr>
<td>9:15 am</td>
<td><strong>Session 3 – Caltech – Chair: Ken Miller</strong></td>
</tr>
<tr>
<td></td>
<td>EunJung Hwang (30 min)</td>
</tr>
<tr>
<td></td>
<td><em>Learning mechanisms underlying volitional control of neural activity in BMIs</em></td>
</tr>
<tr>
<td></td>
<td>James Bonaiuto (15 min)</td>
</tr>
<tr>
<td></td>
<td><em>Modeling the BOLD correlates of competitive neural dynamics</em></td>
</tr>
<tr>
<td></td>
<td>Arnulf Graf (15 min)</td>
</tr>
<tr>
<td></td>
<td><em>Inferring eye position and eye movement from populations of LIP neurons</em></td>
</tr>
<tr>
<td>10:15 am</td>
<td><strong>Break</strong></td>
</tr>
<tr>
<td>10:45 am</td>
<td><strong>Session 4 – Princeton – Chair: Haim Sompolinsky</strong></td>
</tr>
<tr>
<td></td>
<td>Bill Bialek (30 min)</td>
</tr>
<tr>
<td></td>
<td><em>Optimization principles, revisited</em></td>
</tr>
<tr>
<td></td>
<td>Kanaka Rajan (15 min)</td>
</tr>
<tr>
<td></td>
<td><em>Maximally informative stimulus energies in the analysis of neural responses to natural signals</em></td>
</tr>
<tr>
<td></td>
<td>Charles Kopec (15 min)</td>
</tr>
<tr>
<td></td>
<td><em>A unifying framework for choice behavior in temporal processing tasks</em></td>
</tr>
<tr>
<td>11:45 am</td>
<td><strong>Bernstein</strong></td>
</tr>
<tr>
<td></td>
<td>Garrett Thomas Greene (15 min)</td>
</tr>
<tr>
<td></td>
<td><em>Retinal contributions to invariance learning</em></td>
</tr>
<tr>
<td>12:00 pm</td>
<td><strong>Lunch</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Directors Meeting in High Tech Conference Room</strong></td>
</tr>
<tr>
<td>1:30 pm</td>
<td><strong>Invited Speaker 3 – Introduction: Xiao Jing Wang</strong></td>
</tr>
<tr>
<td></td>
<td>Carl Peterson, Ecole Polytechnique Federale de Lausanne, Switzerland</td>
</tr>
<tr>
<td></td>
<td><em>Synaptic mechanisms of sensory perception</em></td>
</tr>
</tbody>
</table>
Thursday, June 28

2:15 pm  Session 5 – Brandeis – Chair: Xiao Jing Wang
Paul Miller (30 min)
Structural and functional plasticity combine to enhance performance in initially
random networks trained to solve cognitive tasks

Don Katz (30 min)
Nonlinear transitions in taste responses reflect the sudden appearance of
behavior-related coding

Ralf Haefner (15 min)
Decision making and attention in a sampling-based neural representation

Timothy O'Leary (15 min)
Neuronal homeostasis: inside the black box

3:45 pm  Break

4:15 pm  Session 6 – Columbia – Chair: Paul Miller
Stefano Fusi (30 min)
The importance of mixed selectivity in complex cognitive tasks

Ken Miller (30 min)
The stabilized supralinear network: A simple circuit motif that explains multi-
input integration in sensory cortex

Yashar Ahmadian (15 min)
Interplay of random and structured connectivity in the dynamics of neural
networks

Pablo Jercog (15 min)
Increase in efficiency and accuracy of the hippocampal spatial representation
over time

6:30 pm  Banquet at Birch Aquarium

8:30 pm  After dinner talk – E.J. Chichilnisky

9:30 pm  End of Thursday's program
Friday, June 29

8:00 am  Breakfast

8:30 am  Invited Speaker 4 – Introduction: Terry Sejnowski
John Doyle, Caltech, Pasadena, CA
Universal laws and architectures

9:15 am  Session 7 – CSHL – Chair: Terry Sejnowski
Dinu Albeanu (30 min)
Gain control in the olfactory bulb: dual roles of the short axon (SA) cells

Balazs Hangya (15 min)
Behavioral correlates of identified nucleus basalis neurons in a sustained attention task

Yi Wei (15 min)
Long-term memory stabilized by noise

10:15 am  Break

10:30 am  Session 8 – Harvard – Chair: Bill Bialek
Florian Engert (30 min)
Motor learning in larval zebrafish

Cengiz Pehlevan (15 min)
Selective neuronal responses in random balanced networks

Baktash Babadi (15 min)
Sparse expansive representations in sensory systems

Julijana Gjorgjieva (15 min)
Parallel pathways for information processing in the retina

SueYeon Chung (15 min)
Quadratic networks for invariant perceptual discrimination

12:00 pm  Lunch

1:30 pm  Invited Speaker 5 – Introduction: Bob Shapley
Sascha du Lac, Salk Institute, La Jolla, CA
Computational neuroscience meets cell biological reality in oculomotor circuits
Friday, June 29

2:15 pm  Session 9 – UCSF – Chair: Bob Shapley

Philip Sabes (30 min)
* A learning-based approach to artificial sensory feedback

Michael Stryker (20 min)
* Active vision modulates responses and plasticity in mouse visual cortex

Jonathan Charlesworth (20 min)
* Principles of trial-and-error learning in adult birdsong

Kris Chaisanguanthum (20 min)
* On the origins of motor noise

3:45 pm  Break

4:15 pm  Session 10 – UCSD/Salk – Chair: Terry Sejnowski

Scott Makeig (30 min)
* Towards human functional electrophysiological brain imaging

Zeynep Akalin Acar (15 min)
* Forward and inverse problem solutions for EEG and ECoG data

Jude Mitchell (15 min)
* A spiking network model of attention-dependent reductions of noise correlation in macaque V4

5:15 pm  Bernstein

Christoph Kirst (15 min)
* Self-organized information routing in oscillatory networks of networks

Ulrich Froriep (15 min)
* Shifts of theta and gamma oscillations in the epileptic hippocampus

5:45 pm  Farewell – Terry Sejnowski

6:00 pm  End of program