

BRAIN, COMPUTATION AND LEARNING

January 8–12, 2018

Faculty Hall, Indian Institute of Science, Bangalore

Monday 8 January 2018

08:00–08:45	Registration
08:45–09:00	Inauguration and Welcome Address P. S. Sastry <i>Indian Institute of Science, Bangalore</i>

Session 1: Machine Learning I

Chair: Sriram Ganapathy, Indian Institute of Science, Bangalore

9:00–10:00	Maneesh Sahani <i>University College London</i> Learning and Using Priors
10:00–11:00	Rajesh Sundaresan <i>Indian Institute of Science, Bangalore</i> Learning to Detect an Oddball Target
11:00–11:30	Coffee Break
11:30–12:00	Special event: Announcement of Prof. Christos Papadimitriou as Pratiksha Trust Distinguished Chair Professor at Indian Institute of Science, Bangalore
	Anurag Kumar <i>Director, Indian Institute of Science, Bangalore</i>
	Kris Gopalakrishnan <i>Chairman, Axilor Ventures; Co Founder, Infosys</i> <i>Pratiksha Trust, Bangalore</i>
12:00–13:00	Christos Papadimitriou <i>Columbia University, New York</i> A Computer Scientist Thinks about the Brain
13:00–14:30	Lunch Break

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Session 2: Neural Circuits I

Chair: Sriram Ganapathy, Indian Institute of Science, Bangalore

14:30–15:30 **Joby Joseph**
University of Hyderabad
GABA: Oscillator, Decorrelator, Regulator

15:30–16:00 **Coffee Break**

16:00–17:00 **Supratim Ray**
Indian Institute of Science, Bangalore
Gamma Rhythm as a Tool to Investigate Neural Processing

17:00–17:30 **Wrap up discussions for the day**

Tuesday 9 January 2018

Session 3: Language and Audition

Chair: Chandra Sekhar Seelamantula, Indian Institute of Science, Bangalore

9:00–10:00 **Mark Liberman**
University of Pennsylvania, Philadelphia
Language and the Brain: Learning about Each from the Other

10:00–11:00 **Sriram Ganapathy**
Indian Institute of Science, Bangalore
Unsupervised Auditory Representation Learning in Machines and Humans

11:00–11:30 **Coffee Break**

11:30–12:30 **Prasanta Kumar Ghosh**
Indian Institute of Science, Bangalore
Seeing Speech

12:30–14:00 **Lunch**

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Wednesday 10 January 2018

Session 4: Neuromorphic computation and Biomechanics

Chair: Chetan Singh Thakur, Indian Institute of Science, Bangalore

9:00–10:00	Andre van Schaik <i>Western Sydney University, Sydney</i> DeepSouth: A Neuromorphic Ecosystem
10:00–11:00	Shantanu Chakrabarty <i>Washington University St. Louis</i> Spiking, Bursting, Noise-shaping and Population Dynamics in a Network of Growth Transform Neurons
11:00–11:30	Coffee Break
11:30–12:30	Patrick van der Smagt <i>Volkswagen group AI research, Munich</i> Learning Movement Without Neural Coding
12:30–14:00	Lunch Break

Wednesday 10 January 2018

Session 5: Brain Networks: Beyond Neurons

Chair: Chetan Singh Thakur, Indian Institute of Science, Bangalore

14:00–15:00	Srinivasa Chakravarthy <i>Indian Institute of Technology Madras, Chennai</i> Modeling Neuro-Glio-Vasular Interactions: Do Cerebral Vessels Compute?
15:00–15:30	Coffee Break
15:30–18:30	Demos and Posters
19:00	BANQUET

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Thursday 11 January 2018

Session 6: Space-Time Perception

Chair: Sridharan Devarajan, Indian Institute of Science, Bangalore

9:00–11:00	Mayank Mehta <i>University of California, Los Angeles</i> Neural Mechanisms Of Abstract Space-Time Perception
11:00–11:30	Coffee Break
11:30–12:30	Mayank Mehta <i>University of California, Los Angeles</i> Neural Mechanisms Of Abstract Space-Time Perception
12:30–14:00	Lunch Break

Thursday 11 January 2018

Session 7: Neural Circuits II

Chair: Sridharan Devarajan, Indian Institute of Science, Bangalore

14:00–15:00	Sumantra Chattarji <i>National Centre for Biological Sciences, Bangalore</i> Parallel Distributed Processing in the Stressed Brain
15:00–16:00	Aditya Murthy <i>Indian Institute of Science, Bangalore</i> The Planning And Control Of Sequential Movements
16:00–16:30	Coffee Break
16:30–17:30	Samuel Norman-Haignere <i>École Normal Supérieure, Paris</i> Exploring the Functional Organization and Computational Properties of Human Auditory Cortex

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Friday 12 January 2018

Session 8: Machine Learning II

Chair: Ambedkar Dukkipati, Indian Institute of Science, Bangalore

9:00–10:00	Ravindran Kannan <i>Microsoft Research Lab, Bangalore</i> Discovering Hidden Structure in Data: Sample Complexity in Unsupervised Learning
10:00–11:00	Shalabh Bhatnagar <i>Indian Institute of Science, Bangalore</i> An Incremental Fast Policy Search using a Single Sample Path
11:00–11:30	Coffee Break
11:30–12:30	Vasant Honavar <i>The Pennsylvania State University, University Park</i> An Excursion into Network Neuroscience
12:30–14:00	Lunch Break

Friday 12 January 2018

Session 9: Audition and Attention

Chair: Ambedkar Dukkipati, Indian Institute of Science, Bangalore

14:00–15:00	Jonathan Fritz <i>The University of Maryland, College Park</i> Transformation from Sound to Meaning at Five Levels in the Ferret Auditory System
15:00–15:30	Coffee Break
15:30–16:30	Shihab Shamma <i>The University of Maryland, College Park</i> Cortical Mechanisms for Auditory Selective Attention and Decision Making
16:30–17:30	Wrap up discussion for the workshop