

GIAN Course on Modeling Cerebral Cortex and Plasticity

IIT-Allahabad

Aug 7-16, 2016

Each Day(Except on Aug 7th):

Program	Time	Venue
Tutorial and Lab	10:00 am - 12:30 pm	4222, CC-2(SILP Lab)
Lecture-1	3:30 pm - 5:00 pm	5055, CC-3
Lecture-2	5:15 pm - 6:45 pm	5055, CC-3

Aug 7:

- **Registration:** 10:00 pm to 1:00 pm [venue: 4222, CC-2]
- **Inauguration** will start at 3:00 pm [venue: 5055, CC-3]
- **Lecture 1:** Introduction to neural and cognitive modeling [Dipanjan Roy]
- **Lecture 2:** Neurons and Networks [Dipanjan Roy]

Aug 8:

- **Tutorial, Lab:** Single neuron models [Dipanjan Roy]
- **Lecture 1:** Organization of the cerebral cortex [Mriganka Sur]
- **Lecture 2:** Visual cortex and visual processing [Mriganka Sur]

Aug 9:

- **Tutorial,Lab:** Population codes, neural encoding and decoding [Dipanjan Roy]
- **Lecture 1:** Cortical circuits [Mriganka Sur]
- **Lecture 2:** Cortical patterning: genes, molecules and models [Mriganka Sur]

Aug 10:

- **Tutorial, Lab:** Models of sensory systems, receptive fields [Dipanjan Roy]
- **Lecture 1:** Cortical plasticity: role of activity [Mriganka Sur]
- **Lecture 2:** Learning [Mriganka Sur]

Aug 11:

- **Tutorial, Lab:** Cortical plasticity and learning [Dipanjan Roy]
- **Lecture 1:** Cortical plasticity: principles and rules [Mriganka Sur]
- **Lecture 2:** Cortical plasticity and brain disorders [Mriganka Sur]

Aug 12:

- **Tutorial, Lab:** Cortical maps [Srinivasa Chakravarthy/ Karthik Soman]
- **Lecture 1:** Cortical map models [Srinivasa Chakravarthy]
- **Lecture 2:** Attractor networks [Srinivasa Chakravarthy]

Aug 13:

- **Tutorial, Lab:** Attractor networks, Hopfield nets [Srinivasa Chakravarthy/ Karthik Soman]
- **Lecture 1:** Memory - models [Srinivasa Chakravarthy]
- **Lecture 2:** Large-scale networks: cortex and basal ganglia [Srinivasa Chakravarthy]

Aug 14:

- **Tutorial, Lab:** Large-scale models [Srinivasa Chakravarthy/ Karthik Soman]
- **Lecture 1:** Computational cognitive architectures [Uma Shanker Tiwary]
- **Lecture 2:** Deep learning [Harish Karnik]

Aug 15: Independence Day Holiday

Aug 16:

- **Tutorial, Lab:** EEG signal processing, emotion analysis [Uma Shanker Tiwary/IITTA faculty]
- **Exam**