

ACCN 2009 – Schedule

WEEK ONE: John Rinzel

<u>Monday 3rd August</u>		
9:30 – 11:00	Michael Hausser	Synaptic integration
11:30 – 13:00	Alain Destexhe	Biophysical models of neuronal excitability and synaptic interactions
15:00 – 16:00		Software previews and introduction of tutors
16:00 – 18:00 + evening		Discussions between students and tutors

<u>Tuesday 4th August</u>		
9:30 – 11:00	Gytis Svirskis	Dendritic integration and cable theory
11:30 – 13:00	Magnus Richardson	From Hodgkin-Huxley to integrate-and-fire models
15:00 – 16:00	Michiel Remme	NEURON Tutorial
16:30 – 17:30	Farzad Farkhooi	PYTHON Tutorial
17:30 – 18:30 + evening		Computational exercises

<u>Wednesday 5th August</u>		
9:30 – 11:00	Michael Hausser	Dendritic computation
11:30 – 13:00	Alain Destexhe	Synaptic noise: back and forth between experiments and models
15:00 – 16:00	Moritz Helias	NEST Tutorial
16:00 – 17:00	Janet Best	XPP Tutorial
17:00 – 18:30		Computational exercises
Evening	Dieter Jaeger	How the deep cerebellar nuclei process inhibition to produce the final output from the cerebellum

<u>Thursday 6th August</u>		
9:30 – 11:00	Erik de Schutter	Modeling biochemical reactions, diffusion and reaction-diffusion systems
11:30 – 13:00		Lab visit at the Neurobiology and Biophysics Department, Freiburg University
Afternoon		MATLAB Tutorial
		Preparation of project presentation

<u>Friday 7th August</u>		
9:30 – 11:00	John Rinzel	The nonlinear dynamics of neuronal excitability
11:30 – 13:00	Mark van Rossum	Synaptic Plasticity
Afternoon	All students	Short (2 minute) presentation of all projects
Evening		Party organized by the students

WEEK TWO: Nicolas Brunel

<u>Monday 10th August</u>		
9:30 – 11:00	Nicolas Brunel	Introduction to the network week
11:30 – 13:00	John Rinzel	Firing rate models for slow network rhythms
15:00 – 16:30	Philipp Rautenberg	PyNEURON Tutorial

<u>Tuesday 11th August</u>		
9:30 – 11:00	Mitya Chklovskii	Experimental connectomics: reconstructing brain wiring diagrams
11:30 – 13:00	Paul Bressloff	Waves and bumps in spatially structured neuronal networks
15:00 – 16:30	Ad Aertsen	Brain-machine interfaces

<u>Wednesday 12th August</u>		
9:30 – 11:00	Yang Dan	Ensemble neural activity and brain states
11:30 – 13:00	Mitya Chklovskii	Theoretical connectomics: inferring function from structure
15:00 – 16:30	Janet Best	Phase planes/dynamical systems
Evening	Paul Bressloff	Geometric visual hallucinations, Euclidean symmetry and the functional architecture of v1

<u>Thursday 13th August</u>		
9:30 – 11:00	Carl van Vreeswijk	Balanced networks
11:30 – 13:00	Ad Aertsen	Spiking dynamics in cortical network models
15:00 – 16:30	Carl van Vreeswijk	Point processes

<u>Friday 14th August</u>		
9:30 – 11:00	Yang Dan	Adult neural plasticity
11:30 – 13:00	Carl van Vreeswijk	Fokker-Planck equation
14:30 (sharp!) – 16:00		Lab visit at the Brain Machine Interface Initiative Lab, Freiburg University
Evening		Party organized by the students

WEEK THREE: Peter Latham

<u>Monday 17th August</u>		
9:30 – 11:00	Peter Latham	Intro / Overview of Computational Neuroscience
11:30 – 13:00	Jonathon Pillow	Encoding and decoding of neural population activity using generalized linear models
15:00 – 16:30	Peter Latham	Information theory tutorial

<u>Tuesday 18th August</u>		
9:30 – 11:00	Yael Niv	Reinforcement learning I: Prediction and classical conditioning
11:30 – 13:00	Jeff Beck	Population Coding I

<u>Wednesday 19th August</u>		
9:30 – 11:00	Nathaniel Daw	Reinforcement learning II: Action selection and algorithms
11:30 – 13:00	Jonathan Pillow	Neural encoding models and likelihood-based methods for spike trains
Evening	Peter Latham	Requiem for the spike

<u>Thursday 20th August</u>		
9:30 – 11:00	Nathaniel Daw / Yael Niv	Reinforcement learning III: Extensions
11:30 – 13:00	Jeff Beck	Population Coding II

<u>Friday 21st August</u>		
9:30 – 11:00	Li Zhaoping	Efficient coding, to maximize information transmission, accounts for the receptive fields in early visual processes
11:30 – 13:00	Li Zhaoping	Primary visual cortex for bottom-up visual selection – theory and experiment.
Evening		Party organized by the students

WEEK FOUR: Yifat Prut

<u>Monday 24th August</u>		
9:30 – 9:45	Yifat Prut	Introduction to Week 4
10:00 – 11:00	Matt Tresch	The distributed control of movement: contributions from peripheral and central systems
11:30 – 13:00	Hagai Bergman	Neural correlates of reinforcement learning in the basal ganglia

<u>Tuesday 25th August</u>		
9:30 – 11:00	Yifat Prut	Descending and ascending motor interactions in primates
11:30 – 13:00	Carl van Vreeswijk	The role of disinhibition in complex voluntary movements

<u>Wednesday 26th August</u>		
9:30 – 11:00	Matt Tresch	Simplifying control strategies for the control of movement
11:30 – 13:00	Hagai Bergman	Computational physiology of basal ganglia disorders
Afternoon		Project work

<u>Thursday 27th August</u>		
		Project presentations

<u>Friday 28th August</u>		
		Project presentations
Evening		Party organized by the students