

Warwick EPSRC Symposium 2008/2009

Challenges in Scientific Computing

Organiser: Andrew Stuart

Monday 8 – Thursday 11 December 2008

Workshop on Computational Neuroscience

Organisers: Jianfeng Feng, David McLaughlin (New York) and Dimitris Vavoulis

All talks will be in Lecture Room B3.02, Mathematics Institute, Zeeman Building**Monday 8th December 2008**

- 09:00 – 09:45 **Claude Meunier** (CNRS and Paris) *How membrane currents interact to shape the integrative properties of motoneurons*
 09:45 – 10:30 **Erik De Schutter** (OIST) *The Purkinje neuron model parameter space: implications for homeostasis and synaptic plasticity*
 10:30 – 11:00 Coffee break
 11:00 – 11:45 **Magnus Richardson** (Warwick) *Reduced neuron models - experiments and theory*
 11:45 – 12:30 **Susanne Ditlevsen** (Copenhagen) *Simple stochastic neuronal models and their parameters*
 12:30 – 13:30 Lunch in the Mathematics Institute Common Room (Zeeman Building)
 13:30 – 14:15 **Paul Bressloff** (Utah) *Mathematical models of protein trafficking in dendrites*
 14:15 – 15:00 **Karl Friston** (Wellcome UCL) *Variational filtering*
 15:00 – 15:30 Tea in the Mathematics Institute Common Room

Tuesday 9th December 2008

- 09:00 – 09:45 **Hugh Robinson** (Cambridge) *Synaptic conductances and the generation of regular and irregular firing patterns in cortical neurons*
 09:45 – 10:30 **Gareth Leng** (Edinburgh) *Firing patterns in neuroendocrine neurones: intrinsic mechanisms and emergent behaviours*
 10:30 – 11:00 Coffee break
 11:00 – 11:45 **Stephen Coombes** (Nottingham) *Gap junctions and emergent brain rhythms*
 11:45 – 12:30 **Roger Traub** (IBM New York) *Gap junctions and the very fast oscillations (>70 Hz) that precede seizures*
 12:30 – 13:30 Lunch break
 13:30 – 14:15 **Ding Mingzhou** (Florida) *10 Hz rhythms in the brain: characterization and function*
 14:15 – 15:00 **Xiao-Jing Wang** (Yale) *Synchronous rhythms with irregular neural firing in the primate cortex during selective attention and working memory*
 15:00 – 15:30 Tea in the Mathematics Institute Common Room
 15:30 – 16:15 **Colin Ingram** (Newcastle) *Developing an e-science platform for supporting time-series data*
 18:30 – ... Dinner at Loch Fyne Restaurant, Kenilworth

Wednesday 10th December 2008

- 09:00 – 09:45 **Wulfram Gerstner** (Lausanne) *Tag-trigger consolidation: a model of synaptic plasticity across different time scales*
 09:45 – 10:30 **Juergen Jost** (MPI Leipzig) *The effects of noise on the firing patterns of single and coupled neurons and the phenomenon of inverse stochastic resonance*
 10:30 – 11:00 Coffee break
 11:00 – 11:45 **Henry Tuckwell** (MPI Leipzig) *Stochastic effects on nonlinear waves in neural systems*
 11:45 – 12:30 **David Cai** (New York) *Computational modeling of the primary visual cortex and insect olfactory system*
 12:30 – 13:30 Lunch in the Mathematics Institute Common Room (Zeeman Building)
 13:30 – 14:15 **Andre Longtin** (Ottawa) *Coding with dynamic synapses and receptive fields*
 14:15 – 15:00 **Rasmus Petersen** (Manchester) *Representation of high bandwidth sensory information by small neuronal circuits in the whisker system*
 15:00 – 15:30 Tea in the Mathematics Institute Common Room
 15:30 – 16:15 **Grigory Osipov** (Nizhny Novgorod) *Sequential synchronous activity in neural networks*

Thursday 11th December 2008

- 09:00 – 09:45 **Shun-ichi Amari** (RIKEN) *Information-geometric studies on neuronal spike trains*
 09:45 – 10:30 **Hiroyuki Nakahara** (RIKEN) *Analyzing neural dynamics by considering higher-order interaction and, also, the effect of time on reward prediction*
 10:30 – 11:00 Coffee break
 11:00 – 11:45 **Edmund Rolls** (Oxford) *Memory, vision, attention, decision-making, and their disorders: linking cellular and subcellular properties to global behaviour*
 11:45 – 12:30 **David McLaughlin** (Provost) *Quantifying neuronal network dynamics through coarse-grained event-trees*
 12:30 – 13:30 Lunch break
 13:30 – 14:15 **Jianfeng Feng** (Warwick) *Moment neuronal networks and rhythmic activity*
 14:15 – 15:00 **Stefan Klampfl** (Graz) *Computing with transient network dynamics*
 16:00 – ... Drinks and snacks in the Mathematics Institute Common Room

If you have any questions during the workshop please see either Hazel Higgins or Yvonne Collins in Room B1.37 which is opposite the Common Room.

27/11/2008

For further information on these and other events see:

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