Congratulations to recent doctoral graduates

**Jyotika Bahuguna**

*Structure-Dynamics relationship in Basal ganglia: Implications for brain function*

Jyotika Bahuguna passed her defense by talking about striatal asymmetry, Go/No-Go bias, the functional classification of homologous networks in basal ganglia (Dichotomous GPe) and bursting in STN-GPe circuit and pathological oscillations.

**Maximilian Schmidt**

*Modeling and simulation of multi-scale spiking neuronal networks*

In his defense Maximilian Schmidt explores what the influence of the network structure on brain dynamics is and if a spiking network model can reproduce such multi-scale dynamics.

**Emiliano Torre**

*Statistical analysis of synchrony and synchrony propagation in massively parallel spike trains*

Emiliano Torre talked about the new developed methods to find correlations in massively parallel data: SPADE, to detect groups of synchronous neurons, ASSET to detect sequences of synchronous events.

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**Papers**

- **Exploring the Usefulness of Formal Concept Analysis for Robust Detection of Spatio-Temporal Spike Patterns in Massively Parallel Spike Trains**
  Yegenoglu A, Quaglio P, Torre E, Grün S, Enders D.
  DOI:10.1007/978-3-319-40985-6_1

- **ASSET: Analysis of Sequences of Synchronous Events in Massively Parallel Spike Trains**
  Torre E, Canova C, Denker M, Gerstein G, Helias M, Grün S
  PLoS Comput Biol 12(7): e1004939,
  DOI:10.1371/journal.pcbi.1004939

- **Handling Metadata in a Neurophysiology Laboratory**
  Lyuba Zehl, Florent Jaillet, Adrian Stoewer, Jan Grewe, Andrey Sobolev, Thomas Wachtler, Thomas G Brochier, Alexa Riehle, Michael Denker and Sonja Grün
  DOI:10.3389/fninf.2016.00026

- **NESTML: a modeling language for spiking neurons**
  Plotnikov D, Rumpe B, Blundell I, Ippen T, Eppler JM, Morrison A
  Lecture Notes in Informatics (LNI), Gesellschaft für Informatik, Bonn 2016, p. 93 – 108. 
  http://www.se-rwth.de/publications

- **Automatic generation of connectivity for large-scale neuronal network models through structural plasticity**
  Diaz-Pier S, Naveau M, Butz-Ostendorf M, Morrison A
  DOI:10.3389/fnana.2016.00057

- **Reaction-diffusion-like formalism for plastic neural networks reveals dissipative solitons at criticality**
  Dmtryo Grytskyy, Markus Diesmann, and Moritz Helias
  DOI 10.1103/PhysRevE.93.062303
Biophysical network modelling of the dLGN circuit: Different effects of triadic and axonal inhibition on visual responses of relay cells
Heiberg T, Hagen E, Halnes G, Einevoll GT
ECollection 2016
DOI:10.1371/journal.pcbi.1004929

Similarity in neuronal firing regimes across mammalian species
DOI:10.1523/JNEUROSCI.0230-16.2016

Pronounced Surface Band Bending of Thin-Film Silicon Revealed by Modeling Core Levels Probed with Hard X-rays
Wippler, David, Regan G. Wilks, Bart E. Pieters, Sacha Jennifer van Albada, Dominic Gerlach, Juergen Huepkes, Marcus Bär, and Uwe Rau
DOI:10.1021/acsami.6b04666

Effect of Heterogeneity on Decorrelation Mechanisms in Spiking Neural Networks: A Neuromorphic-Hardware Study
Thomas Pfeil, Jakob Jordan, Tom Tetzlaff, Andreas Grübl, Johannes Schemmel, Markus Diesmann, and Karlheinz Meier
Phys. Rev. X 6, 021023, 18 May 2016
DOI:10.1103/PhysRevX.6.021023

Accepted Papers

Designing workflows for the reproducible Analysis of Electro-physiological Data
Denker M, Grün S
In: Brain Inspired Computing, eds Amunts K, Grandinetti L, Lippert T, Petkov N. Springer Series Lecture Notes in Computer Sience [In Press]

Emergence of synchronous spike patterns in monkey motor cortex during a delayed reach-to-grasp task
Torre E, Quaglio P, Denker M, Brochier T, Riehle A, Grün S.
Journal of Neuroscience [In Press]

Activities

9th Bernstein Sparks Workshop: Recent advances in recurrent network theory: fluctuating correlated dynamics across scales
25 – 27 May 2016, Göttingen, Germany
Together with Farzad Farkhooi (U Berlin), Guillaume Lajoie (U Washington), and Merav Stern (Hebrew U), Moritz Helias organized a Sparks workshop funded by the Bernstein Network. The workshop focused on recent developments on the theory of fluctuating dynamics of neuronal networks on multiple scales and was very well received by all participants.

Tag der Neugier 2016
5 June 2016
A successful day for the INM-6. With interesting lectures around brain research INM-6 presented as an important part of the research community at Forschungszentrum Jülich.

INM-6 Retreat 2016
6 – 7 June 2016
Intense Work, developing new ideas for tomorrow’s research and a nice together – this year’s Retreat is a good template for the next.

MAMC - Multi-area models of cortex - Workshop CNS 2016
7 July 2016, Jeju Island, South Korea
Organizer: Sacha van Albada.
This workshop aims to provide an overview over current multi-area cortical modelling efforts, prominent experimental findings addressed by such models, and ways in which systematic knowledge can be gained from large-scale simulation studies, for instance with the help of mean-field theory.
As part of the workshop Maximilian Schmidt gives a talk about “A multi-scale spiking network model of macaque visual cortex”
http://www.fz-juelich.de/goto?id=1950562

NEST user workshop 2016
3 – 4 November 2016, Karlsruhe, Germany, FZI Research center for information technology
http://www.nest-initiative.org/nest-activities/

Figure 3 Overview of the NEST-SpiNNaker-Elephant Demo

The workshop theme is “Motor control and reinforcement learning with spiking networks”.

NESTML workshop
3 – 5 December 2016, Jülich, Germany