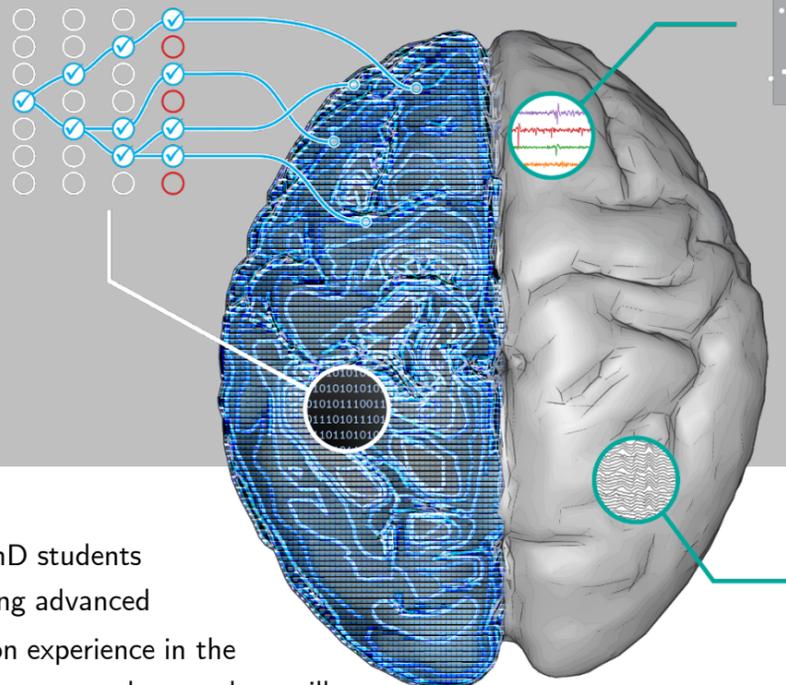


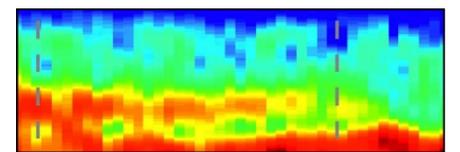
AND A 2021

G-Node Advanced Neural Data Analysis Course

Techniques to record neuronal data from populations of neurons are rapidly improving. Simultaneous recordings from hundreds of channels are possible while animals perform complex behavioral tasks. The analysis of such massive and complex data becomes increasingly challenging. This advanced course aims at providing deeper training in state-of-the-art analysis approaches in systems neuroscience.



Torre et al. (2016) PLoS Comput. Biol. 12(7): e1004939 CC-BY



Denker et al. (2011) Cereb. Cortex 21 (12): 2681-95 CC-BY-NC

The course is addressed to excellent master and PhD students and young researchers who are interested in learning advanced techniques in data analytics and in getting hands-on experience in the analysis of electrophysiological data. Internationally renowned researchers will give lectures on statistical data analysis and data mining methods with accompanying exercises. Students will define and perform their own analyses on provided data to solve a challenge. Participants are required to have a strong interest in data analysis, a background in a field with a strong mathematical relation, knowledge of algebra, matrix operations, and statistics, and need to have solid programming experiences (preferably in Python).

Topics covered

Single neuron properties and statistics · Stochastic processes · Surrogate methods · Detection of spatio-temporal patterns · Unitary Events · Statistical analysis of massively parallel spike data · Higher-order correlation analyses · Elephant toolbox · Spike-LFP relationship · Population coding · State space analysis · Machine learning · Data mining · Research data management · Reproducibility · Data sharing

Faculty

Michael Denker
Jülich Research Center, Germany
Udo Ernst
Univ Bremen, Germany
Sonja Grün*
Jülich Research Center, Germany
RWTH Aachen Univ, Germany

Björn Kampa
RWTH Aachen Univ, Germany
Adam Kohn
Albert Einstein College of Medicine, New York, USA
Jakob Macke
Technical Univ Munich, Germany
Luca Mazzucato
Univ of Oregon, Eugene, USA

Martin Nawrot*
Univ of Cologne, Germany
Yifat Prut
Hebrew Univ, Jerusalem, Israel
Hansjörg Scherberger
German Primate Center, Göttingen, Germany
Thomas Wachtler*
G-Node, LMU Munich, Germany

Date and Venue

April 19 - 29, 2021
Due to Covid-19, this year the course will be taught online.

Deadline

Deadline for application is January 31, 2021

Organized by (*)



More Information



<http://www.g-node.org/anda>