

Educational course: Neuroimaging – 24.11.2019 – 26.11.2019

Online course via ZOOM videoconference

Detailed program

Tuesday 24th November

Time	Description
9:30 – 10:30	Introduction to the course (<i>Michal Mikl</i>) Anatomical and physiological backgrounds to brain mapping (<i>Robert Roman</i>)
10:30 – 12:00	Overview of MRI principles for non-physicists (<i>Zenon Starčuk</i>)
12:00 – 13:15	Lunch
13:15 – 14:30	fMRI basics <ul style="list-style-type: none">- Principles of fMRI, Data preprocessing (<i>Michal Mikl</i>)- Statistical analysis (<i>Martin Gajdoš</i>)
14:30 – 14:45	Coffee break
14:45 – 16:00	fMRI advanced I - connectivity <ul style="list-style-type: none">- Introduction to connectivity, Seed analysis and PPI, Effect of noise on connectivity (<i>Marek Bartoň</i>)- Graph Theory, Granger causality, Dynamic Causal Modelling (<i>Martin Gajdoš</i>)
16:00 – 16:15	Coffee break
16:15 – 17:00	Principles of DWI and fibre tracking (<i>Jan Valošek</i>)
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Wednesday 25th November

Time	Description
9:00 – 10:30	fMRI advanced II <ul style="list-style-type: none">- How to prepare acquisition of fMRI data (<i>Michal Mikl</i>)- ICA for connectivity and exploration of fMRI data (<i>Tomáš Slavíček</i>)- Introduction to dynamic connectivity (<i>Martin Gajdoš</i>)- Real-time fMRI neurofeedback (<i>Pavla Linhartová</i>)
10:30 – 10:45	Coffee break
10:45 – 12:00	Electrophysiological methods and Simultaneous EEG-fMRI <ul style="list-style-type: none">- Processing of HD-EEG data (<i>Martin Lamoš</i>)- Simultaneous EEG-fMRI (<i>Radek Mareček</i>)
12:00 – 13:15	Lunch
13:15 – 14:00	Practical aspects of neuroimaging studies <ul style="list-style-type: none">- Data quality and related issues, examples of wrong interpretation (<i>Martin Gajdoš</i>)
14:00 – 15:00	Non invasive Brain Stimulation <ul style="list-style-type: none">- TMS basics- principles and research application, other non-invasive methods (<i>Luboš Brabenec</i>)
15:00 – 15:15	Coffee break
15:15 – 16:30	Morphometry <ul style="list-style-type: none">- The basics of computational morphometry in neuroimaging (<i>Pavel Říha</i>)- Voxel-based morphometry and related methods (<i>Radek Mareček</i>)

Thursday 26th November

Time	Description
9:15 – 10:15	Animal MRI - Quantitative imaging, physiological models, and Perfusion. Differences between animal and human studies. technical aspects of animal studies (<i>Radovan Jiřík</i>)
10:15 – 10:30	Coffee break
10:30 – 12:00	fMRI data processing - practical session 1 Introduction to SPM12, preparation to data processing
12:00 – 13:15	Lunch
13:15 – 15:00	fMRI data processing - practical session 2 Processing of fMRI data in SPM12 – practical examples based on SPM datasets