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UNIVERSITATEA DE
MEDICINĂ ȘI FARMACIE
IULIU HAȚIEGANU
CLUJ-NAPOCA



Summer School of Quantitative Electroencephalography 2nd Edition

In the framework of NeurotechEU
17th-21st of July 2023

PROGRAMME

Monday, 17TH July 2023 Meet & Greet. Neurotechnology: EEG Basics

Location: RoNeuro Institute, 37 Mircea Eliade Street

Brain Technology & EEG Basics – DAY 1		
09:00	Welcoming participants	Professor Dafin F. Mureșanu, Dr. Ștefan Strilciuc, Lecturer Livia Popa
9:30	Paradigm of Brain Technology and Neuroscience	Professor Dafin F. Mureșanu
10:00	Neurobiology of EEG Signals	Dr. Diana Chertic
10:30	<i>Coffee break</i>	
10:45	Overview of EEG Basics (Montage selection, Signal acquisition, Identifying patterns, Types of activity, Artifacts, Clinical applications) – Part I	Lecturer Livia Popa
11:45	<i>Coffee break</i>	
12:00	Overview of EEG Basics (Montage selection, Signal acquisition, Identifying patterns, Types of activity, Artifacts, Clinical applications) – Part II	Lecturer Livia Popa
13:00	<i>Lunch break</i>	
14:00	Signal Acquisition – EEG live registration	Lecturer Livia Popa EEG Technician Gabriela Perde
15:30	<i>Coffee break</i>	
15:45	Initial Technical Setup (MATLAB, EEGLAB)	Lecturer Livia Popa, Dr. Hanna Dragoș, Dr. Victor Dăbală, Dr. Diana Chertic, Stud. Vlad Chelaru
17:00	Teamwork Initiation	
19:00: Intercultural Dinner: get to know the Local Team & Romanian Cuisine		



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Tuesday, 18TH July 2023 Neurotechnology: Theoretical foundations of QEEG

Location: RoNeuro Institute, 37 Mircea Eliade Street

From Standard EEG to Brain Mapping using QEEG. Hands-on Sessions – DAY 2		
9:00	Introduction to QEEG: Data preprocessing, Artifact rejection and reduction (Complex demodulation, Infinite Impulse Response (IIR) filters, Band-rejection filters)	Lecturer Livia Popa
10:30	<i>Coffee break</i>	
10:45	Independent Component Analysis (ICA). Principal Component Analysis (PCA)	Dr. Diana Chertic
11:45	<i>Coffee break</i>	
12:00	Frequency and Time-Frequency Domain Analysis. Fast Fourier Transform (FFT). Spectral Analysis	Dr. Victor Dăbală
13:00	<i>Lunch break</i>	
14:00 16:30	QEEG Signal Preprocessing (Hands-on)	Lecturer Livia Popa, Dr. Hanna Dragoș, Dr. Victor Dăbală, Dr. Diana Chertic, Stud. Vlad Chelaru
17:00 – 19:00 Visit to “Alexandru Borza” University Botanical Garden		

Wednesday, 19TH July 2023 Neurotechnology: QEEG Analyses

Location: RoNeuro Institute, 37 Mircea Eliade Street

Brain Connectivity. Hands-on Sessions – DAY 3		
9:00	Time-domain Connectivity (Correlation, Mutual Information, Cross-Correlation, Granger Causality, Transfer Entropy)	Dr. Hanna Dragoș
9:45	<i>Coffee break</i>	
10:00	Frequency-domain Connectivity (Coherence, Phase Locking Value, Phase Slope Index, Parametric and Non-Parametric Granger Causality)	Dr. Hanna Dragoș



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11:15	<i>Coffee break</i>	
11:30	Source Analysis	Dr. Diana Chertic
12:30	<i>Lunch break</i>	
13:30	QEEG Feature Extraction (Hands-on)	Lecturer Livia Popa, Dr. Hanna Dragoș, Dr. Victor Dăbală, Dr. Diana Chertic, Stud. Vlad Chelaru
16:00		
16:30	City Guided Tour	

Thursday, 20TH July 2023 Neurotechnology: QEEG and Other Technologies

Location: RoNeuro Institute, 37 Mircea Eliade Street

QEEG and Other Technologies. Hands-on Sessions – DAY 4		
9:00	QEEG & Functional Magnetic Resonance Imaging (fMRI), Functional Near-Infrared Spectroscopy (fNIRS), Transcranial Direct Current Stimulation/ Transcranial Alternating Current Stimulation (tDCS/tACS), Magnetoencephalography (MEG)	Dr. Irina Maria Vlad
10:00	<i>Coffee break</i>	
10:15	QEEG & Transcranial Magnetic Stimulation (TMS)	Dr. Anca Demea
10:45	QEEG & Eye Tracking (ET)	Dr. Emanuel Ștefănescu
11:15	<i>Coffee break</i>	
11:30	Projects coordination	Lecturer Livia Popa, Dr. Hanna Dragoș, Dr. Victor Dăbală, Dr. Diana Chertic, Stud. Vlad Chelaru
13:00	<i>Lunch break</i>	
14:00	Teamwork (Hands-on)	Lecturer Livia Popa, Dr. Hanna Dragoș, Dr. Victor Dăbală, Dr. Diana Chertic, Stud. Vlad Chelaru
17:00		



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Friday, 21ST July 2023 Projects presentation

Location: RoNeuro Institute, 37 Mircea Eliade Street

Final Evaluation – DAY 5		
9:00	Projects presentation & Assessments of participants	Dr. Ștefan Strilciuc, Lecturer Livia Popa, Dr. Hanna Dragoș, Dr. Victor Dăbală, Dr. Diana Chertic
12:00 12:30	<i>Coffee break & Final discussions</i>	
13:00 – 14:00 Closing Ceremony Location: Multimedia Hall, 8 Victor Babeș Street		