ADVANCED EEG WORKSHOP

23-24 OCT '24

description

What?

Advanced EEG Workshop 23-24th October 2024

How do our brains process continuous signals? Can we reconstruct what we hear, see and how we move just by observing our brain data? Are these brain mechanisms predictable?

With more advanced computational methods we can decode the processing of continuous, long duration sound, visual and motor signals in the human cortex. Importantly, these analysis methods go beyond the traditional Event Related Potential (ERP) technique and can highlight the details in the temporal and spatial dynamics of EEG data. This technique can be used in a variety of interdisciplinary fields, like auditory attention, visual search, electromyography (EMG) or classification of movement disorders.

The focus of this two-day workshop will be to acquire the fundamental skills to use the Multivariate Temporal Response Function (mTRF) toolbox (Crosse, 2016). The workshop will include both theory and practice sessions where the language of coding will be python. Participants will get an introduction to the necessary computer science background as well as work through examples using data from previous experiments. By the end of the workshop, participants should be ready to use this technique in their own research.

BYOD - Bring Your Own Data!
We will provide example datasets but if you want to get involved properly, please bring your own EEG recordings and stimuli. In order to fully participate, it is advised to have your EEG data already preprocessed and the stimulus files linked/aligned to event markers.

(Also, there will be free pizza for lunch! Just saying...)

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Who?

YOU:

- PhDs & PostDocs (max. 12 participants)
- Prerequisites:
  - Basic knowledge of EEG recording, analysis and statistics
  - Some signal processing background can be helpful
  - coding skills (python, matlab?)

Workshop organisers:

- Mareike Daeglau (University of Oldenburg a.k.a. The Auditory Valley)
- Jakab Pilaszanovich (University of Leipzig)

What?

- Topics:
  - Attention decoding
  - Temporal Response Functions
  - Cortical processing of continuous signals
- BYOD - Bring Your Own Data
  - preprocessed EEG data
  - Behavioural data linked to EEG (optional)

> ARE THESE BRAIN MECHANISMS PREDICTABLE?

CAN WE RECONSTRUCT WHAT WE HEAR, SEE AND HOW WE MOVE JUST BY OBSERVING OUR BRAIN DATA?

Oct 23 — Workshop day 1

at Graduate Academy Leipzig (GAL)
Wächterstr. 30, 04107 Leipzig

09:30	General Introduction
10:00	Fundamentals of the Multivariate Temporal Response Function (mTRF) Approach
12:00	Lunch Break
13:00	Working with Forward and Backward Models in mTRF

Oct 24 — Workshop day 2

10:00	mTRF Toolbox: Implementation and Functionality
12:00	Lunch Break
13:00	Tackle your own data with the mTRF toolbox
15:00	Wrap Up
19:00	Dinner & Drinks (optional)

Free pizza during lunch break!

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Interested?

Contact

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Venue

Graduate Academy Leipzig (GAL)
Wächterstr. 30, 04107 Leipzig

"HOW DO OUR BRAINS PROCESS CONTINUOUS SIGNALS?"