Brain Products Academy workshop in cooperation with MES Forschungssysteme GmbH.

Introduction to EEG data acquisition and ERP analysis

Why attend?

In this workshop we offer you the opportunity to learn how to acquire EEG data and how to do an ERP analysis using Analyzer 2.

On the first day we will cover the nature of the EEG signal and how to acquire an EEG signal, including hands-on practical measurements in small groups.

On the second day we will introduce you to the BrainVision Analyzer 2 software and general principles of getting started with analysing EEG data for event related potentials (ERPs). The sessions include hands-on practice with demo data.

What To Expect

- Learn from Brain Products and MES experts.
- Assured high-quality teaching that comes from Brain Products Academy.
- Rich program of lectures, demos, interactive sessions.
- Comprehensive handouts, example datasets, and workshop materials.
- Practical hands-on EEG acquisition in small groups with dedicated trainers.
- Hands-on data analysis guided by our experts.
- Theoretical background to the analysis methods used.

Tuesday 28th May

Introduction to EEG data acquisition

09:15- 09:30   Welcome to the workshop

09:30- 10:30   **What is EEG?**

We will introduce the EEG signal, where it comes from, how to measure it, and what typical EEG measures look like. We will also consider EEG in the context of other neuroscience and brain imaging methods.

10:30 - 11:00   *Coffee Break*

11:00 - 12:00   **What do I need to record EEG?**

We will introduce hardware and software needed to record an EEG signal. We will explain the different types of amplifiers and electrodes that are available and how this influences your recordings. Finally, we will introduce our recording software BrainVision Recorder.

12:00 - 13:00   *Lunch break*

13:30-15:00   **Practical 1: How do I record EEG?**

In small interactive groups, we will demonstrate the A-to-Z of how to connect the different hardware and software elements together to record EEG and physiological responses for a simple experimental paradigm. With a volunteer participant, we will demonstrate the practicalities of EEG cap preparation and perform a live recording.

15:00-15:30   *Coffee Break*

15:30-17:00   **Practical 2: How do I plan and execute an EEG recording?**

In small interactive groups, attendees will gain direct hands-on experience in planning, setting up, and performing an EEG recording on their own, with the limited involvement of our trainers.

17:00-17:30   **Wrap up and Q&A**

Please note session times may be subject to minor changes.

Wednesday 29th May

Processing EEG data using BrainVision Analyzer2

09:00-09:45   **Introduction to BrainVision Analyzer 2**

Learn how to find your way around BrainVision Analyzer 2. This session is meant to learn about the user interface, the main concepts and functionalities, how to create visualizations and more. Also an ideal refresher if you are already an Analyzer user.

09:45-10:45   **ERP Analysis - Part 1: Pre-processing of EEG data**

Event-related potentials (ERPs) are the most commonly analyzed characteristic in EEG research. In this first session, we will focus on the pre-processing part and you will learn how to clean the EEG signal from noise and artifacts, including those of ocular origin.

10:45-11:15   Coffee Break

11:15-12:15   **ERP Analysis - Part 2: Post-processing, Group analysis & Exports**

In the second part of ERP analysis, you will learn how to create different experimental conditions based on event markers, create ERPs and extract the data of interest. As a part of this session, we will also approach automation within and across participants and group-analysis.

12:15-13:00   **Overview of other analysis techniques**

In the last session, you will learn about processing techniques other than ERPs based on typical analysis examples. Finally, we will also point you to where you can find more information on many different analysis topics supported by Analyzer 2.

13:00-13:30   **Q&A (attendance optional)**

Do you have open questions at the end of the workshop day? Or maybe you brought some questions from your own analysis project? Stay around a bit longer and get the answers from the Analyzer experts!

Please note session times may be subject to minor changes.