

# The BeMoBIL pipeline: fully automated EEG processing

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Mobile EEG data typically contains artifacts in the spectrum, channel, time, and source domain. Understanding these artifacts and removing them from the data are key steps in any data analysis approach – but these steps are often time-consuming and not always transparent and reproducible.

The BeMoBIL pipeline is a MATLAB toolbox for EEG data analysis and visualization based on EEGLAB with several extensions and wrappers. It covers every step from the raw to the cleaned EEG data on all four artifact domains and does so in an easy-to-use, fully automated, transparent, documented, and reproducible fashion. It also includes visualizations of all relevant steps to allow the user to still get an understanding of the underlying data.

This workshop will guide users through the cleaning steps that are used in the pipeline, including explanations about key issues in mobile EEG data, and include hands-on sessions to follow the processing and get an understanding of the used parameters and their effect on the cleaning.

## Keywords

EEG, MoBI, Methods

## Prerequisites

Experience in using MATLAB will be helpful. MATLAB r2019a or above is required to run the pipeline. The pipeline can be downloaded from: <https://github.com/BeMoBIL/bemobil-pipeline>, additional software requirements can be found at: <https://github.com/BeMoBIL/bemobil-pipeline/wiki/Requirements-for-BeMoBIL-Pipeline>

## Course Schedule (September 11<sup>th</sup>-12<sup>th</sup>, 14:00h – 18:00 CET)

Day 1 (Saturday, Sep 11th)		Day 2 (Sunday, Sep 12th)	
14:00	MATLAB Setup	14:00	Recap, questions
14:30	EEG preparation	14:30	ICA interpretation
15:00	ZapLine plus	15:30	Event extraction, epoching
16:00	Channel cleaning	16:30	IC clustering group level analysis
16:30	ICA	17:30	Farewell
17:30	Analytics plots		

## Maximum Intake

100