



Comparison of connectivity methods using electroencephalography (EEG) signals

Brain connectivity studies have been performed in order to understand how the brain functions in different states. Research shows that this connectivity varies in relation to the cognitive task performed by the subject.

There are several methods to estimate brain connectivity. Coherence, bicoherence, symbolic mutual information are some examples. However, most of the studies are done using functional MRI (fMRI) signals. The goal of this research is to study and compare the brain connectivity during rest and during a cognitive task using EEG data.

The tasks may include using existing libraries and/or implements new scripts with MATLAB. Evaluation of the implemented methods should be done using benchmark EEG datasets such as those available at <https://physionet.org>. An evaluation of the pros and cons of each method and combinations of methods is also expected.

The thesis may be written in English or German.

Requirements:

- Basic knowledge of signal processing
- Programming in MATLAB

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