# **EEGP7**

PLEASE NOTE: Work using Python. It would give you appreciable work progress since cross-checking would be less time-consuming for me.

**TO USE: Pearson correlation, symmetric-binary network, frequency band- [8-12] Hz, network properties**

# Deliverables

1. Two time series are provided in HDF5 format. Python code to convert them in readable format is also attached herewith.

**Specialty of the datasets:** In both cases, seizure onsets at left frontal lobe and persist for longer time.

1. Papers on Pearson correlation and electrodes are provided.

## Methodology

1. Data reconstruction:

**Step 1-** Truncate the original iEEG time series by taking all the seizure time points along with 5000 time points from before as well as after seizure. To detect seizure time points, go to: wichtig frontal\_EEGP7.xlsx

**Step 2-** Further, fragmentize the truncated time series into 14 parts.

Scheme: b/f seizure + seizure + a/f seizure = 2+10+2

Length of the fragments, separately in the three regions, must be identical.

**Step 3-** Remove reference channels (go to: reference channles.txt). Column names must be only the channel names without any other characters in the string.

1. Plot time signal & frequency distribution for the truncated time series i.e. including data points corresponding to b/f sz (5000) + sz (whatever no of data points you get) + a/f sz (5000)
2. Data filtration:

Filter the truncated time series into Alpha band. All our study would be based on this filtered time series.

1. Network construction:

**Step 1-** To construct correlation matrix (CM), use mutual information. So, you see you will have 14 CMs with dimension n × n; n= no of channels in time series.

**Step 2-** Binarize the matrix by picking up threshold such a way all the channels are recruited in the network.

# To study

1. Variation in local degree
2. Variation in local clustering coefficients
3. Assortativity

# Update schedule

1. Meeting 1: Methodology
2. Meeting 2: Results and discussions
3. Meeting 3: Project report

# For further communication

Any time reach via mail.