Flowchart For the Analysis of EEG and RR interval, Respiratory data

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1. Extracting features from EEG

- Extracting alpha, beta, gamma, theta, delta from EEG per channel using Wavelet decomposition

  (function extractFeatures(study, subtask))
- Calculating the phase difference between two signals(EEG) using FFT and angle function

  (function myPhdiffmeasure(signalA, signalB))
- Calculating the coherence between two signals using mscohere function

  (function myMSCohere(signalA, signalB))
- T-test between two signals using myTtest function

  (function myTtest(struct_a, struct_b)

2. Statistical Analysis between RRI and Resp

- Calculating the phase difference between two signals(EEG) u sing FFT and angle function

  (function myPhdiffBtwRRI_RESP(signalA, signalB))

- Calculating the coherence between two signals using mscoh ere function

  (function myMSCohereBtwRRI_RESP(signalA, signalB))

How to calculate the phase lag between two signals

- Reading data on local using load function (ex. load('ctrl_cc_syncEEG.mat');)
- Preprocessing the siganls.
- Taking the FFT (ex. X = fft(x))
- Determine the max value and max point. (ex. [mag_x, idx_x] = max(X);)
- Determine the phase difference (ex: px = angle(X(idx_x));
  spy = angle(Y(idx_y));
  phase_lag = py - px;)