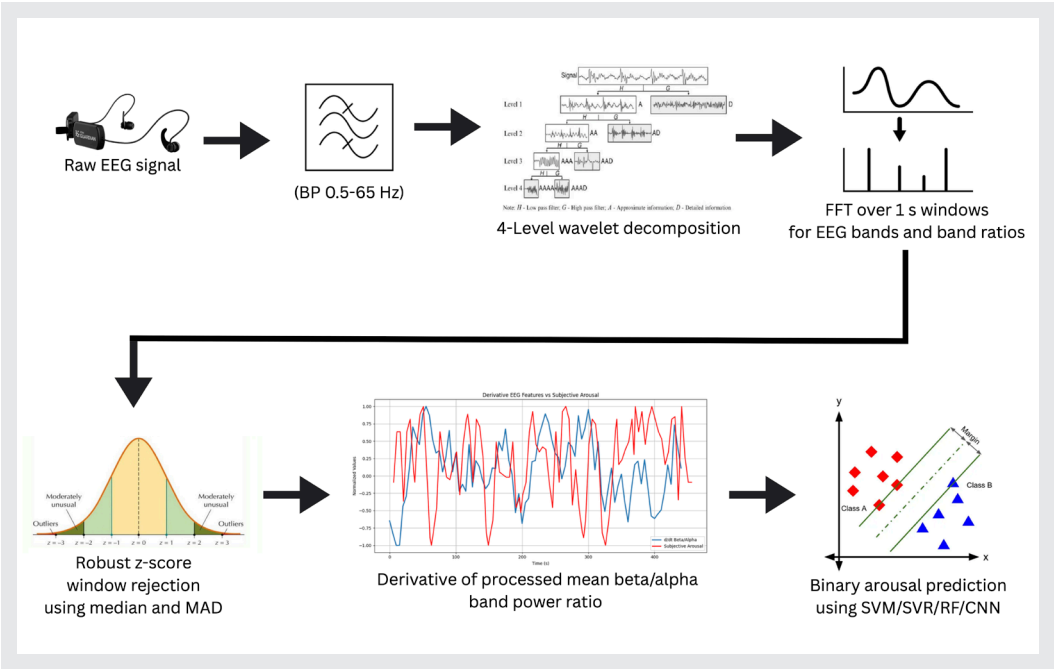
School of Engineering

Institute of Embedded Systems

Designing a Psychoacoustic Evaluation Approach to Assess the Limits of a Closed-Loop In-Ear Single-Channel EEG for Emotion Classification using Music Stimuli



- Psychoacoustic evaluation framework using music stimuli
- Single-channel in-ear EEG data acquisition under controlled, blindfolded listening conditions
- Dedicated preprocessing pipeline featuring Wavelet-based denoising and robust MAD Z-score epoch rejection
- Explorative signal alignment of objective measurement data and subjective arousal labels
- Per-subject binary arousal classification approach with machine learning modeling using Support Vector Machine, Support Vector Regression, Random Forest, and 1D-CNN

Bachelor Thesis FS26
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