# Reducing Nonstationary Effects on Motor Imagery BCI Using Constant-Q FBCSP

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Electroencephalogram (EEG) signals used in brain computer interfaces (BCIs) change over time, both within a single session and between sessions. Factors such as change in strategy by the user, sensorimotor learning, user fatigue, small differences in electrode position and muscular activity result in nonstationary EEG dynamics. Dealing with these characteristics when transferring from the calibration to a feedback session is a challenging but critical issue in BCI applications. To cope with this problem, a framework based on constant-Q filter bank Common Spatial Patterns (FBCSP) and Linear Discriminant Analysis (LDA) is proposed. This framework has been applied on dataset IVc from the BCI Competition III. Results show that the proposed method compares favorably with an adaptive framework such as covariate shift adaptation in tackling the nonstationarity in BCIs.