in this study we have employed most effective feature-based and model-based methods to extract motor activity changes characterized by EDR/ERS patterns in Electroencephalogram signal. We exploited for the first time Kat'z fractal dimension to identify motor related changes with application in asynchronous BCI systems. Methods applied in this study include Fractal Dimension, Band Power, m-spacing estimate of Entropy, and Quadratic Model-based detector according to a previous work in [2]. Although we assess our methods on an idle versus execution of foot movement data set, our long term goal is to employ them on imagery movement data as well. Evaluations of our early stage experiments reveals true positive rates of $7.69\%-7.67\%$ with their false positive rates of $32.3\%-54.6\%$, respectively.

Keywords: Asynchronous BCI, Asynchronous Brain-Controlled Switch, ERD/ERS Patterns, Fractal Dimension

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