

Discrimination of vision impairments using single trial VEPs

Abstract

Analysis of Visually evoked potential (VEP) in the investigation of ocular diseases is gaining interests from researchers all over the world. VEP is an electrical signal generated by the brain (Occipital Cortex) in response to a visual stimulus. By analyzing these responses, the abnormalities in the visual pathways in a person can be detected. Traditionally, the amplitude and the latency values were considered for the analysis. This study is intended to investigate the frequency domain based features of single trial VEPs in discriminating between subjects with normal vision from those having vision impairments. Four different classifiers, Linear Discriminant Analysis (LDA), Quadratic Discriminant Analysis (QDA), k Nearest Neighbor (kNN) and the Support Vector Machine (SVM) are used for the investigation. The proposed method shows promising results for the discrimination of vision impairments.

Keywords — Frequency domain feature, vision impairment, visually evoked potential