

## **Independent Component Extraction Framework for Localization of a Moving Visual Evoked EEG Source**

Visual Evoked Potentials (VEPs) signals are useful indicators to explore the hidden neural circuitry in the human brain. VEPs are measured from Electroencephalograms (EEGs) that provide high temporal resolution, and correspond to the electrical activity in the brain that occurs in response to a stimulus. Nowadays, Independent Component Analysis (ICA) is a powerful tool for analyzing VEPs. ICA is able to extract multiple, functionally distinct sources of a VEPs generated by disparate regions of cerebral cortex. Extraction of these sources greatly enhances the awareness of VEPs by providing a cleaner and less ambiguous measure of source activity. So far, the brain sources are supposed to be static or time-invariant. However, advanced neurological research has shown that brain sources are not fixed but moving relies on different internal and external stimuli. Independent Component Extraction (ICE) is a modified approach to Blind Source Extraction (BSE) that is designed the extraction of only one Source of Interest (SOI). ICE has shown effective results in speech processing. However, this method can only be applied to static sources. Therefore, an extended version of ICE has been based on Constant Separating Vector (CSV) mixing model to extract a moving activity (source). This work introduces a shift in the current paradigm of brain source extraction by considering one moving EEG source representing most activities in the brain. This source moved from one location to another in the brain, reflecting the underlying brain activity.