

## **ANESTHETIC LEVEL CLASSIFICATION FROM EEG SIGNAL DURING THE SURGERY USING SPECTRUM ENTROPY**

**Dehghan M., Dehghan M., Davoodi Y.**

Iran-Sari-Farhang St. Farhangian Ave. 8th Ave. Venuse Apartment, info@oep.ir

Anesthetic level classification of Electroencephalogram (EEG) signal during a surgery is very important to prevent awareness of the patient. In traditional methods, some clinical features are noteworthy. EEG signal is the best way to monitor of Anesthetic Level cause of the EEG signal nature. In this paper a classification method based on Spectrum entropy is presented. Normalized spectrum entropy (NSE) is frequency domain feature, that is used for characterizing the Level. To keep the patient at a specified level of anesthesia,  $200 \text{ mg Kg}^{-1} \text{ min}^{-1}$  Propofol was injected in 5 different steps. At this five equal steps, EEG signal has been recorded ND NSE feature has been calculated. At the end a multilayer perceptron (MLP) was used a classifier. This method is capable of detecting the five different anesthetic levels (very low, low, medium, high, and very high) with an overall accuracy rate of 99.8%.