

Flat EEG image segmentation by fuzzy entropy-based multi-level thresholding

ABSTRACT

Image segmentation in this age is very important and a good challenge to start the study for image analysis as well as interpreting images with higher levels such as in the medical field and identification of an object's shape. The main purpose for image segmentation is to divide the image into sections by comparing the intensity, color, tone and image textures [1-3]. There are many ways to segment images such as thresholding, clustering, edge detection and region extraction. Thresholding is a process of partitioning image into a foreground and background. It is a common preprocessing step in medical visual system and may be classified into global and local thresholding. Global thresholding involves a single threshold value for the entire image. Meanwhile, for local thresholding there are multiple threshold values in an image. Generally, thresholding may be done in two ways which are classical and fuzzy approaches. Classical thresholding is applied to image pixels that are considered precise and the regions of the image are well defined. On the other hand, fuzzy thresholding considered imprecise regions with unclear boundaries [4]. Fuzzy set is an extension of the classical set that was introduced by Zadeh [5] in 1965. Therefore, fuzzy approach is crucial in handling the uncertainties and imprecise information whereby membership degree is introduced to each pixel of the image.