

FUZZY C-MEANS CLUSTERING WITH ADJUSTABLE FEATURE WEIGHTING DISTRIBUTION FOR BRAIN MRI VENTRICLES SEGMENTATION

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TÓM TẮT:

Fuzzy c-means (FCM) is a method of clustering which allows one piece of data to belong to two or more clusters and is widely applied in modern applications of image segmentation. The FCM algorithm supports multiple feature inputs. However in standard FCM algorithm, the weighting of each input feature is equal which makes the result of clustering inflexible for a specific application. In this paper, a modified FCM algorithm which allows the input features weighting distribution to be adjusted for specific application is presented. Experimental results have shown that there are significant improvements when the capability for fine tuning input feature weighting distribution is incorporated in Magnetic Resonance Imaging (MRI) lateral ventricles segmentation. An automatic FCM clustering optimization method by applying validity functions as measurements of clustering results is also suggested.