Using Simulated Annealing Algorithm to Segment Brain Magnetic Resonance Images

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ABSTRACT

This research investigates heuristic algorithms for segmenting human brain magnetic resonance images (MRI). The preliminary results of K-mean, fuzzy algorithm for learning vector quantization (FALVQ), learning vector quantization (LVQ), and fuzzy C-mean clustering algorithm are used as initial solutions for different simulate annealing (SA), such as classical SA (CSA), fast SA (FSA), generalized SA (GSA), adaptive SA (ASA), and Tsallis SA (TSA). These different algorithms are based on different moving rules and annealing processes. This research estimates twenty of the combination methods to locate the meningggioma and calculates the index of the effort. The experimental results show that the combination of FALVQ and ASA is better than others to segment the MRI in the human brain.

Keywords : meninggioma, magnetic resonance images, simulated annealing, index of effort, images segmentation

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