



RESEARCH ARTICLE

Normalized graph-cut based Necrotic Image Segmentation of Brain Tumours

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Abstract— *This paper aims at enhancing Necrotic regions based Normalized graph -cut segmentation of Brain Tumour on contrast T1 Magnetic Resonance (MR) Images. Image segmentation means a process of partition an image into more distinct regions. The brain tumour segmentation methods rely on the intensity enhancement. A large Variety of different tumour segmentation approaches used for medical image segmentation. Among them, a clustering method have been investigated and used. In this paper, CA (Cellular Automata) based seeded tumour segmentation algorithm is proposed. Which determine the Volume of Interest (VOI) and seed selection. First, establish the connection of the CA-based segmentation to the graph-cut method to show that the iterative CA framework solves the shortest path problem. This paper describe segmentation method consist of two phases. In the first phase, the MR Image is acquired from patient database and contrast enhancing the image. In the second phase, the CA algorithm run twice for background seed (healthy cell) and foreground seed (tumour cell) for probability calculation. Furthermore, apply Graph- Cut (GC) method to differentiate necrotic and enhancing tumour tissue content, which gains importance for a detailed assessment of radiation therapy response.*

Key Terms: - Cellular Automata (CA); Brain tumour segmentation; Magnetic Resonance Imaging (MRI); Necrotic region; Radiotherapy; Seeded segmentation
