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Fast and Computationally Efficient Boundary Detection Technique for Medical Images ARPITA DAS, PARTHA GOSWAMI, SUSANTA SEN, Calcutta University, India — Detection of edge is a fundamental procedure of image processing. Many edge detection algorithms have been developed based on computation of the intensity gradient. In medical images, boundaries of the objects are vague for gradual change of intensities. Therefore need exists to develop a computationally efficient and accurate edge detection approach. We have presented such algorithm using modified global threshold technique. In our work, the boundaries are highlighted from the background by selecting a threshold (\mathbf{T}) that separates object and background. In the image, where object to background or vice-verse transition occurs, pixel intensity either rises greater or equal to \mathbf{T} (background to object transition) or falls less than \mathbf{T} (object to background). We have marked these transition regions as object boundary and enhanced the corresponding intensity. The value of \mathbf{T} may be specified heuristically or by following specific algorithm. Conventional global threshold algorithm computes the value of \mathbf{T} automatically. But this approach is not computationally efficient and required a large memory. In this study, we have proposed a parameter for which computation of \mathbf{T} is very easy and fast. We have also proved that a fixed size memory [256×4Byte] is enough to compute this algorithm.

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