

## **326. SEGMENTATION OF BLOOD VESSEL & OPTIC DISC USING NORMALIZED GRAPH CUT & EM ALGORITHM**

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Retinal image analysis is increasingly prominent as a non-intrusive diagnosis method in modern ophthalmology. In this paper, we describe a novel method to segment blood vessels and optic disc in fundus retinal images using normalized graph cut and expectation & maximization algorithm. This project utilizes the concept of level sets to remove noise, enhance the image, and track the edges of the vessels. Initially, to improve contrast in the image, anisotropic diffusion filter is designed to follow with a level set method to enhance the image and remove noise. After this, the starting points are looked for and finally finish with a tracking method featuring an interface which propagates through the blood vessels. The level set and fast marching methods have been researched extensively for use on medical images from brain MRIs to arteriogram. To optimize the normalized graph cut segmentation anisotropic diffusion process is carried out to remove the different kinds of noise in the image and to enhance the information stored along the edges of the image. Finally EM algorithm with morphological operation is carried out to obtain optic disc.

Keywords---- Normalized graph cut, EM algorithm, Morphology, Anisotropic diffusion filtering.

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