

RETINAL THICKNESS MEASUREMENTS USING OPTICAL COHERENCE TOMOGRAPHY

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ABSTRACT

Optical coherence tomography (OCT) has become a conventional ocular imaging technique which can be used in the diagnosis of glaucoma by measuring the retinal nerve fiber layer (RNFL) thickness. This paper reviews various techniques used to measure the RNFL thickness. The Gaussian Mixture Model (GMM) makes use of a kernel and cluster masks which detects eight retinal layers with nine boundaries. Automated Layer Segmentation model uses iterative polynomial smoothing procedure and detects five retinal layers accurately. The Markov Boundary model uses edge detection kernel which detects the outer and inner retinal boundaries along with retinal landmarks. GMM detects more number of retinal layers thereby more information is obtained for better pathological and ocular diagnosis.

KEYWORDS: Glaucoma, Optical Coherence Tomography (OCT), OCT Layer Segmentation, Boundary Detection, Edge Detection, Retina, Retinal Nerve Fiber Layer (RNFL), Kernel, Filter