Abstract

The rapid development of digital imaging & computer vision has made an increase in potential to use the image processing technologies in ophthalmology. Image processing systems has become now a standard clinical practice with the development of medical diagnostic systems. The retinal images provide vital information about the health of the sensory part of the visual system. Retinal diseases like Glaucoma, Diabetic retinopathy, Age-related macular degeneration, Stargart's disease, retinopathy of prematurity that can lead to blindness manifest as artifacts in the retinal image. The retinal images usually suffer from non-uniform illumination. For a reliable diagnosis of the disease we need a good quality image. We are using two approaches for localization 1) Hough Space, 2) dividing the region into $n \times n$ regions. For the segmentation of the ONH we are using Pyramidal decomposition method.
References

- Marc Lalonde, Mario Beaulieu, and Langis Gagnon, "Fast And Robust Optic Disc Detection Using Pyramidal Decomposition And Hausdorff-Based Template"; in IEEE Transactions On Medical Imaging, Vol 20, No 11, November 2001
- D. Jayadevappa, S. Srinivas Kumar, and D. S. Murty, "A New Deformable Model Based On Level Sets for Medical Image Segmentation"; in the IAENG International Journal of Computer Science, 36:3, IJCS_36_3_01
- J. Liu, D. W. K. Wong, J. H. Lim, X. Jia, F. Yin, H. Li, W. Xiong, T. Y. Wong, "Optic Cup and Disk Extraction From Retinal Fundus Images For Determination Of Cup-To-Disc Ratio"; in the Singapore IEEE Conference on Industrial Electronics and Applications
- Michael D. Abra`moff, Wallace L. M. Alward, Emily C. Greenlee, Lesya Shuba, Chan Y.
Kim, John H. Fingert, and Young H. Kwon, "Automated Segmentation Of The Optic Disc From Stereo Color Photographs Using Physiologically Plausible Features";
- Artemas Herzog, Kim L. Boyer, Cynthia Roberts, "Extracting The Optic Disk Endpoints In Optical Coherence Tomography Data"; in the Proceedings of Seventh IEEE workshop on Applications of Computer Vision, 2005
- Xiaoyun Yang, Philip Morrow, Bryan Scotney, "Optic Nerve Head Segmentation In HRT Images"; School of Computing and Information, Engineering, University of Ulster.
- V. Grau1, J. C. Downs1, C. F. Burgoyne, "Segmentation Of Connective Tissue In The Optic Nerve Head Using An Anisotropic Markov Random Field"; LSU Eye Center, LSU Health Sciences Center, New Orleans, Louisiana, USA.
- Madhusudhanan Balasubramanian, Stanislav Zabir´c, Christopher Bowd, Hilary W. Thompson, Peter Wolenski, S. Sitharama iyengar, Bijaya B. Karki, and Linda M. Zangwill, "A Framework For Detecting Glaucomatous Progression In The Optic Nerve Head Of An Eye Using Proper Orthogonal Decomposition";
- Huiqi Li, Member, IEEE, and Opas Chutatape, "Automated Feature Extraction In Color Retinal Images By A Model Based Approach"; in the IEEE Transactions on Biomedical Engineering, Vol. 51, NO. 2, February 2004. Pg: 246
- Radim Chrastek, Mathias Wolf, Klaus Donath, Heinrich Neumann, "Automated Segmentation Of The Optic Nerve Head For Glaucoma Diagonosis"; at the FORWISS Knowledge Research Group, Erlangen.
- Seng Soon Leel, Mandava Rajeswari, Dhanesh Ramachandram, "Preliminary And Multi Features Localization Of Optic Disc In Colour Fundus Images"; in the Malaysia National Computer Science Postgraduate Colloquium 2005 (NaCSPC&apos;05)

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