Automatic Detection of Optic Disc in Digital Retinal Images

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Abstract

On the research work leading to automatic detection of optic disc from retinal images is very essential and crucial for expert ophthalmologists to diagnose diseases. Many of techniques can achieve good performance on retinal feature that is clearly visible. Unfortunately, it is a normal situation that the color retinal images in Thailand are poor-quality images. The existing algorithm cannot detected poor-quality images. Therefore, this study is a part of larger efforts to develop a novel method for detection of optic disc in poor-quality retinal images. A novel method is presented towards the development for detection of optic disc in poor-quality retinal images. The digital retinal images are detected by using morphological method and Otsu’s algorithm after the key preprocessing steps, i.e., color normalization, contrast enhancement and noise removal. This enables the difference in the proposed method compared to other approaches and the algorithm can achieve good performance even on poor-quality retinal images. The proposed method was evaluated using the local dataset and the publicly available of the STARE project’s dataset. The optic disc was detected correctly in 91.35% using the STARE dataset and 97.61% using the local dataset. This system intends to help expert ophthalmologists in screening process to detect of optic disc
faster and more easily.

References

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**Index Terms**

Computer Science  Image Processing

**Keywords**

Optic Disc  Morphological Method  Otsu's Methods  STARE Databases  Expert Ophthalmologists