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An Enhanced Retinal Image Analysis Using Fovea Detection using Unsymmetrical Trimmed Median Filter

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ABSTRACT: This paper proposes a simple and fast algorithm using Mathematical Morphology to find the fovea region of high noise document images. This project compares the cases where the images are exposed to two types of noises Salt and pepper and Gaussian noise , using two different filters namely 1.adaptive wavelet filter 2. Modified Decision BasedUnsymmetric Trimmed Median Filter (MDBUTMF) .

I.INTRODUCTION

Fovea is the most important part of the retina for human vision. Fovea is a circular region of Radius 200 Microns.If Radius <200 microns .We conclude that there may be some infection or disease in eye, such as retinopathy or blindness.Certainly, it sounds like you're discussing a topic related to retinal image analysis and fovea detection using an unsymmetrical trimmed median filter. If you have specific questions or need information on this topic, please feel free toask, and I'll do my best to assist you.

This research appears to focus on an enhanced method for analyzing retinal images by detecting the fovea, a critical part of the eye, using an unsymmetrical trimmed median filter. The fovea is essential for sharp vision, and this technique likely aims to improve its detection in medical imaging or other applications.

II. RELATED WORKS

It's clear that the research involves the detection of the fovea, a vital part of the retina for human vision, with a specific focus on its circular region of 200 microns radius. This analysis could be valuable for identifying potential eye infections or diseases such as retinopathy or blindness. If you have more specific questions or need additional information on this topic, please feel free to ask.

III. EXISTING METHOD

Curvelet transform and multistructure elements morphology Currently ,diagnosis of eye disease are based on the optic disc detection rather than recognizing the fovea .Most optic disc detection methods are based on the fact that optic disc isthe conver.

IV. PROPOSED SYSTEM

This project propose a general purpose method for detecting the fovea region of high noise document image without the help of information on optic disc .In preprocessing we use adaptive wavelet filter and MDBUTMF for color image noise removal .It uses a simple algorithm to detect fovea using

1) Blood vessel detection

2) fovea localization

V. BLOCK DIAGRAM

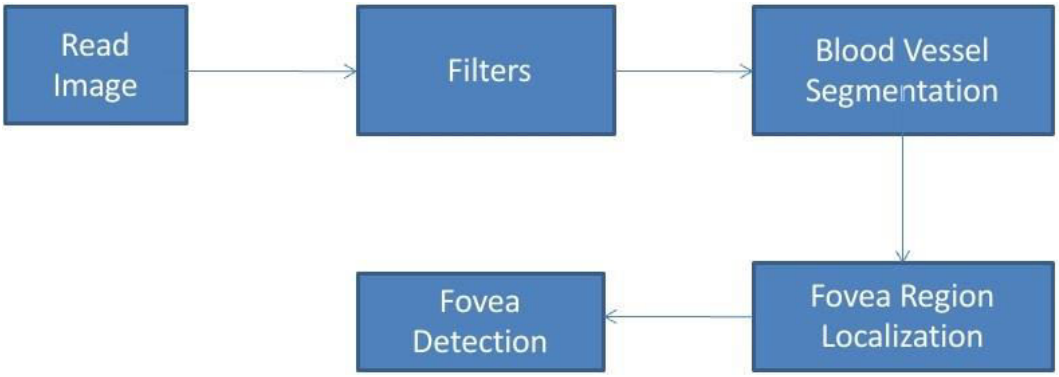

Fig 1. Block diagram for proposed method

VI. EXPERIMENTAL RESULTS

I don't have access to the specific results of the research you mentioned, as my knowledge is based on information available up to September 2021. If you have any specific questions or if there's a particular aspect of the results you'd like to discuss,please provide more details or questions, and I'll do my best to provide information and insights based on the knowledge available up to that date.

VII. FUTURE SCOPE

Improved Algorithms: Researchers may continue to refine and develop algorithms for more accurate andefficient fovea detection. This could involve machine learning and deep learning techniques to enhance detection capabilities.Clinical Applications: The technology could be further integrated into clinical practices for early diagnosis ofretinal diseases and eye conditions, contributing to better patient care and treatment outcomes.Telemedicine: With advancements in remote healthcare, these techniques may play a vital role in telemedicine, allowing for remote retinal image analysis, consultation, and monitoring of eye health.

VIII. CONCLUSION

This project proposed a new efficient method to localize the fovea from a noisy retinal fundus image. Adaptive wavelet filter and MDBUTMF are used for denoising the image .I have used some morphological operators and geometrical features to localize fovea region sucessfuly. The extracted macula and fovea region may help in further diagnosis of related diseases

REFERENCES

1. Mohammad Saleh Miri and Ali Mahloojifar , "Retinal Image Analysis Using Curvelet Transform and Multistructure Elements Morphology by Reconstruction ", IEEE transactions on biomedical engineering, vol. 58,no. 5, may 2011
2. Osareh, A., Mirmehdi, M., Thomas, B and Markham, R. 2010. Automated identification of diabetic retinal exudates in digital colour images. British Journal of Ophthalmology. vol. 87, 1220-1223, 2010.
3. M. E. Martinez-Perez, A. D. Hughes, S. A. Thom, and K. H. Parker "Improvement of a retinal blood vessel segmentation method using the insight segmentation and registration toolkit (ITK)," in Proc. IEEE 29thAnnu. Int. Conf. EMBS. Lyon, IA, France, 2007, pp. 892–895.
4. S. Dua, N. Kandiraju, and H.W. Thompson, "Design and implementationof a unique blood-vessel detection algorithm towards early diagnosis ofdiabetic retinopathy," in Proc. IEEE Int. Conf. in Inf. Technol.,2007
5. A.M.Mendonc¸a and A. Campilho, "Segmentation of retinal blood vesselsby combining the detection of centerlines and morphological reconstruction,"IEEE Trans. Med. Imag., vol. 25, no. 9, pp. 1200–1213, Sep. 2006.

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