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Abstract:
Early and correct diagnosis is critical for optimal care and prevention of visual loss due to glaucoma, the leading cause of permanent blindness globally. New possibilities for better glaucoma identification and monitoring have emerged the progress that has been made in the field of AI and machine learning. Using a unique use of both SVM and CNN, or support vector machines and convolutional neural networks, to solve a problem., this study automates the examination of ophthalmological results relevant to glaucoma. In this paper, we introduce a hybrid SVM-CNN algorithm that draws from the most promising aspects of both existing these two approaches to machine learning. In order to lay a solid groundwork for further investigation, SVM is combined first- class classification and feature extraction. CNN is used to refine and improve classification accuracy since it is a potent deep learning architecture that can automatically learn complicated characteristics from raw data. The algorithm is educated on a large collection of ophthalmic pictures used in glaucoma diagnosis, such as fundus photos, examinations of the eye's visual acuity and OCT scans (optical coherence tomography). Noise is removed, contrast is increased, and the format is standardized in these preprocessed photos. The presence or absence of glaucoma is subsequently determined by feature extraction and classification using the SVM-CNN hybrid model. This study's findings support the use of the SVM-CNN hybrid algorithm for reliable detection of glaucoma-related pathology in ophthalmic pictures. The suggested AI-based methodology has various benefits over conventional manual diagnosis approaches, including increased efficiency, more consistency, and the possibility of earlier detection. It can also help ophthalmologists by offering automated preliminary assessments, so the

specialists can devote their time and energy where it is most needed. This study concludes the promise of AI-based approaches, and in partic...

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I. Introduction

Ophthalmology is crucial to the protection of human sight and the avoidance of blindness. Glaucoma is the most subtle and potentially devastating of the several eye illnesses that threaten eye health. The term "silent thief of sight" is commonly used to describe glaucoma because of the gradual and symptom-free decline in visual quality that occurs up until the disease reaches its last, irreversible phases. The key to successful management and intervention is early detection and a correct diagnosis [13]. However, because of glaucoma's complexity, it has been difficult for healthcare providers to reliably and rapidly diagnose this ailment. New possibilities for better glaucoma diagnosis and treatment have emerged in recent years, thanks to the introduction of AI to the field of ophthalmology.

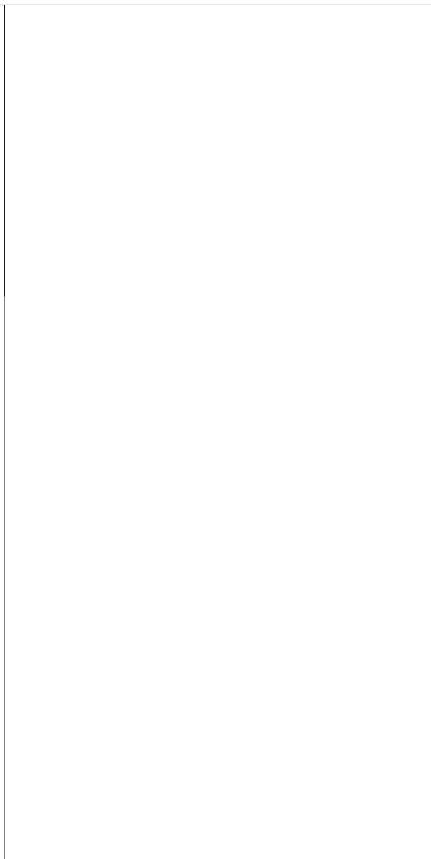| Authors	⌄
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