

## GLAUCOMA DETECTION USING MACHINE LEARNING

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### **ABSTRACT**

*Glaucoma is the leading cause of irreversible blindness and disability worldwide. Nevertheless, the majority of patients do not know that they have the disease and detection of glaucoma progression using standard technology remains a challenge in clinical practice. Fundus evaluation is an eye exam that helps both ophthalmologists and non-ophthalmologists to provide vital diagnostic information about Glaucoma.*

*This disease is considered an irreversible disease that results in vision deterioration. If treated early, it is possible to slow or stop the progression of the disease with medication, laser treatment, or surgery. The goal of these treatments is to decrease eye pressure. Content-based image analysis and computer vision techniques are used in various health-care systems which are adapted in our work to detect Glaucoma.*

*Damage manifests as a progressive shift in vision followed by vision loss. The treatment options for glaucoma include eye drops, surgeries such as laser therapy, filtering surgery, laser trabeculoplasty, and a trabecular bypass stent.*

*We use Transfer learning to train and screening the InceptionResNetV2 model for detection of glaucoma by using structural and functional tests which gives maximum accuracy compared to other CNN models by understanding the advancements in the particular area. In the proposed system which provides the detection accuracy of 88% in true positive and false positive in order to determine the Glaucoma in the eyes.*

*Since the present hardware used by the hospitals are fixed and expensive, we use an easy-to-use web app. It helps the patient to view the result from any part of the world.*

**KEYWORDS:** *Glaucoma diagnosis, Deep learning, Image classification, Transfer learning, Inception-ResNet-V2.*



