

## ABSTRACT

*Glaucoma is an eye disease with special characteristics such as neuropathy optic nerve damage and visual field abnormalities. An increased intraocular pressure is a significant risk factor for glaucoma. According to the World Health Organization (WHO), the second leading cause of blindness in the world after cataracts is glaucoma. Ophthalmologists usually detect glaucoma using the Cup to Disc Ratio (CDR) parameter, and manual CDR calculations should be performed by trained doctors and use expensive and relatively limited devices. This research was made to overcome this problem by creating a system that can classify glaucoma through images using the Convolutional Neural Network (CNN). The study used Residual Network-34 architecture to classify five types of glaucoma, namely: early, moderate, deep, OHT, and normal. The input from the system is a fundus image consisting of 1.980 images, divided into 80% train-ing data and 20% test data. System analysis was conducted by investigated the effect of three different optimizers, namely: Adam, SGD, and RMS prop, the effect of epoch value, and the effect of batch size value. From the study results, it was obtained that the system could classify glaucoma with an accuracy 89% - 91% using Adam's optimizer using Adam's optimizer with learning rate 0.001, epoch 50, and batch size 32.*

**Keywords:** *Convolutional Neural Network, Glaucoma, ResNet-34, Optimizer*