Abstact

Glaucoma is a disease that occurs due to conditions when the soft fibers of the optic nerve in the eye are damaged. The optic nerve functions to transmit vision from the eye to the brain. So that people with glaucoma often experience conditions of reduced visibility, even to blindness. There has been research that uses the Machine Learning method but has low accuracy. Thus, in this study we propose a glaucoma classification method by combining Deep Learning with kNN, where Deep Learning is used as feature extraction. With the input of feature extraction results from Deep Learning, then it is put into the 3 layers of the kNN algorithm, and produces output in the form of class classifications and confidence scores. It is hoped that this combined model can provide increased accuracy in handling the glaucoma severity classification task. By classifying the severity of glaucoma, glaucoma patients can receive appropriate medical care. This combined method based on Machine Learning and Deep Learning will be called Deep kNN. The division of the PPA category into several classes, namely normal; mild; and severe, with a dataset of 250 retinal fundus images. After the training and testing process was carried out on the Deep kNN combined model, the results obtained an accuracy of 78%.

Keywords : *glaucoma, classification, deep learning, machine learning*.