

Macular Degeneration Analysis Using Deep Learning Models

Babeetha S

Assistant Professor, Department of Computing Technologies, SRM Institute of Science and Technology, Kattankulathur, Chengalpattu, Tamil Nadu, India

Shubhra Pathak

Department of Computing Technologies, SRM Institute of Science and Technology, Kattankulathur, Chengalpattu, Tamil Nadu, India

Abstract

One of the main causes of vision loss in the elderly is age-related macular degeneration (AMD), a degenerative retinal disease. This study proposes a deep learning-based technique for automated AMD classification from retinal fundus pictures using EfficientNet-B5. The model maintains computation speed while achieving accuracy through fine-tuning and transfer learning. In addition to being compared to conventional diagnostic techniques, ablation research was conducted to see how adjusting various layers impacts outcomes. Tests show better classification results; this method can become a scalable and trustworthy solution for early AMD identification, helping ophthalmologists with on time diagnosis and treatment planning.

Keywords

Grad-CAM, OCT, SVM, EfficientNet B5, deep learning, macular degeneration, medical imaging.

