ID 140

Artificial Intelligence Powered Cataract Diagnosis: Enhancing Precision in Ophthalmic Healthcare

KL Ruwanpathirana[1#], MWP Maduranga[1], and MVT Kawya[1]

[1]Faculty of Computing, General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka

[#]38-bit-21-0056@kdu.ac.lk

Abstract

World widely, the main cause of blindness is cataracts. The traditional ways that the ophthalmologists use to diagnose cataracts are subjective lens examination and visual acuity tests. Nevertheless, the diagnostic precision, reproducibility, and variability of manual diagnosis are limited. Application of artificial intelligence (AI) and machine learning (ML) techniques are used to analyse digital eye images for automated, standardized cataract classification and staging is done by recent research. This paper reviews 20 seminal studies demonstrating AI-based cataract diagnosis outperforms unaided physicians, with implications to enhance clinical decision making and improve global access to quality eye care. To achieve widespread integration, issues with data privacy protection, monitoring requirements, and physician acceptability must be resolved. However, AI has a great deal of promise to enable precision medicine and tailored treatment for cataracts.

Keywords: *Cataract diagnosis, Artificial intelligence, Machine learning, Computer-aided detection, Digital imaging, Ophthalmology, Precision medicine*