Title: Automated Classification of Retinal Pathologies Using Deep Learning

Group Members: Ritika Pandey (251439054), Sumedha Galgali (251434696), Garima Gambhir (251390436)

Abstract:

This project aims to develop an AI-based diagnostic tool for classifying retinal diseases, specifically age-related macular degeneration (AMD), diabetic macular edema (DME), diabetic retinopathy (DR), and drusen, using optical coherence tomography (OCT) images. The dataset consists of over 84,000 images across the four categories, enabling us to leverage deep learning techniques to automate image analysis. We plan to apply transfer learning with convolutional neural networks (CNNs), utilizing pre-trained models to reduce the need for extensive training data and computational resources. This approach will improve classification accuracy and offer potential for early disease detection, thus contributing to better clinical outcomes. The model's transparency and interpretability will also allow clinicians to understand the key features responsible for the AI's predictions, offering valuable insights for diagnosis and treatment planning.