

Development and Clinical Validation of AI-Based Software as a Medical Device for Non-Invasive Ophthalmic Imaging and Automated Reporting**Principal Investigators**

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Aims

This project develops AI software that transforms fundus photos into angiography images using GANs and generates automated reports via LLMs, enabling precise, non-invasive diagnosis of retinal diseases while improving clinical efficiency.

Background

Current retinal diagnostics rely on invasive angiograms requiring dye injections. Our team's breakthrough GAN technology converts standard fundus photos into equivalent angiograms, non-invasively detecting conditions like neovascularization, while our LLM system generates instant diagnostic reports.

Work to be Done

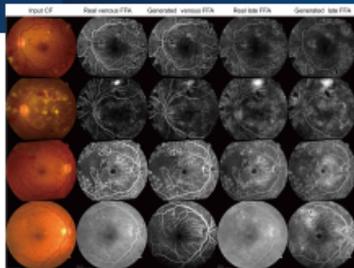
The project will integrate AI models for commercialization by developing Software as a Medical Device (SaMD). This involves refining and integrating GAN-based and LLM-based models into a user-friendly platform that meets regulatory standards. Rigorous clinical trials will be conducted to validate the AI's accuracy and efficacy in diagnosing retinal conditions like diabetic retinopathy and age-related macular degeneration.

Benefits

The AI-powered ophthalmic imaging system delivers three key advantages: (1) enhanced diagnostic accuracy through non-invasive analysis enabling earlier disease detection, (2) expanded healthcare access to underserved regions through portable implementation, and (3) significant cost reductions (up to 60%) by replacing invasive procedures with automated diagnostics. Additionally, the technology streamlines clinical workflows through integrated reporting features while creating new commercialization opportunities in medical AI.

Impact

This innovation is transforming global eye care by establishing a new standard for retinal disease diagnosis. Its scalable AI platform promises to benefit millions of patients worldwide, particularly in resource-limited settings.



Multi-stage generation of FFA from colour fundus photographs