

Open Postdoctoral Fellow Position in Medical AI

*Provost and Vice-chancellor office,
eResearch Center,
Data AI Science Platform,
Monash University*

Melbourne University, Centre for Eye Research Australia and Monash University is searching for a postdoctoral fellow. The Medical AI section in eResearch Center is led by Prof. Paul Bonnington and Dr. Zongyuan Ge. The postdoctoral scholar will also work with Prof. Mingguang He who is also affiliated with Zhongshan Ophthalmic Centre.

The lab focuses on fill the critical gap and tackle the challenge of applying artificial intelligence (AI) in ophthalmology. The current AI system is only able to make a binary classification on a specific disease and its severity, based on a single imaging modality - fundus photography. Using glaucoma as an example, our current system is able to classify fundus images into no glaucoma, probable glaucoma and certain glaucoma. However, a more clinically relevant classification, such as what type of glaucoma is present? how likely is it to progress? what is the best medical or surgical treatment? or how likely is the patient to respond to a specific treatment, is not currently available. This would require access to data from additional imaging modalities such as visual field, ocular coherence tomography (OCT) as well as real-world clinical data in text format and to use this data to train a new AI algorithm to build a clinical decision system.

Core research objectives in the laboratory include: (1) Development of a data banking system to collect multi-modality clinical data for 200K patients from established clinical consortiums; (2) Development of multi-modality deep learning algorithm for diagnosis and prediction; (3) Development of a deep learning algorithm to build a clinical query system; (4) Translation of the algorithm into a functioning robot system; (5) Product development, validation, real-world assessment and impact research.

The postdoctoral scholar will be working on three core research topics: (1) develop foundational AI methods for analyzing retinal diseases from multiple modalities including imaging and text; (2) develop clinical prediction models using multi-modal and longitudinal medical data from the Asia Pacific Research Accelerator (APRA) program; (3) develop a clinical query system based on the designed algorithms. The scholar will deploy and verify those methods as clinical applications to transform medical care.

Requirements:

- Post-graduate degree (PhD completed or near completion) in AI, data science, computer science or a related field (having medical background would be a plus)
- Experience in computer vision and machine learning
- Outstanding academic output documented via journal/conference publications in the field
- Ability to program in either Python or C++
- Outstanding communication skills with fluency in both written English and Chinese (A certain amount of EMR data comes from China)

Benefits:

- Melbourne based
- Sponsorship for permanent residency application
- Compensation package from \$ (full-time equivalent inclusive of superannuation)

Interested applicants should submit a CV, a brief statement of research interests to zongyuan.ge@monash.edu and mingguang.he@unimelb.edu.au