Towards Generalizable and Robust Multimodal AI for Healthcare

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ABSTRACT
Artificial Intelligence (AI) is catalysing a paradigm shift in healthcare, promising to reshape the landscape of patient care. At the heart of this transformation is medical imaging, where AI-enabled technologies have achieved remarkable breakthroughs in disease screening, diagnosis, assessment, and treatment. Despite these advances, the deployment of AI models into real-world clinical settings encounters substantial challenges, particularly due to the heterogeneous data distributions and modalities of medical images. In this talk, I will introduce a series of our research dedicated to advancing generalisable and robust multimodal AI, with the goal of making these models to have wide clinical adoption. The presentation will cover a spectrum of deep learning topics, including deep model generalisation, robust multimodal learning, self-supervised learning, and foundation models in medical imaging. I will conclude with a vision for future research directions, aimed at building better models for the next generation of healthcare technology.