



## Statistics and Actuarial Science Seminar

**Title:** Towards learning, fairness, and adaptation of federated medical foundation models

**Speaker:** Chunmei Feng (UCD)

**Date:** Thu 27th November 2025 at 3:00PM

**Location:** E0.32 (beside Pi restaurant)

**Abstract:** Medical foundation models are driving the transformation of healthcare, from alleviating the burdens of fatigued clinicians to assisting in the streamlining of administrative tasks and accelerating clinical decision-making and diagnosis. Typically, the creation of the medical foundation models necessitates the aggregation of extensive training data from diverse institutions, raising significant concerns regarding patient privacy. Federated learning offers a promising solution by facilitating collaborative training across multiple healthcare organizations without the need to share sensitive data. However, challenges related to fairness and adaptation arise in the training of federated medical foundation models. Ensuring that models are fair across different demographic groups is crucial to prevent biases that could adversely affect specific populations. Furthermore, the ability of medical federated foundation models to effectively adapt to a variety of medical tasks, such as diagnosis and treatment recommendations, remains a considerable obstacle. This presentation aims to address these challenges by exploring methods to enhance the learning process, uphold fairness among user communities, and improve the adaptation ability of federated medical foundation models for various healthcare applications. By focusing on these core areas, we strive to unlock the full potential of artificial intelligence in healthcare, promoting more equitable and efficient patient care.