

Distinguished Seminar Series on Data Science & Artificial Intelligence

Concept Drift Detection, Understanding and Adaptation

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🕒 11:00 - 12:00 (HKT, UTC+8)

📍 Online via Zoom / HJ305

🗣️ English

✍️ Please register at <https://polyu.hk/yuSPr>
or scan the QR code



All are welcome!

Abstract

Concept drift is known as an unforeseeable change in underlying streaming data distribution over time. The phenomenon of concept drift has been recognized as the root cause of decreased effectiveness in many decision-related applications. A promising solution for coping with persistent environmental change and avoiding system performance degradation is to build a detection, understanding and adaptive system. This talk will present a set of methods and algorithms that can effectively and accurately detect, understand, and adapt concept drift. The main contents include (1) concept drift detection: competence models to indirectly measure variations in data distribution through changes in competence. By detecting changes in competence, differences in data distribution can be accurately detected and quantified, then further described in unstructured data streams; (2) concept drift understanding: algorithms for determining a drift region to identify when and where a concept drift takes place in a data stream, and a local drift degree measurement that can continuously monitor regional density changes; (3) concept drift adaptation: methods and algorithms for model adaptation as well as solutions for redundancy removal. These techniques can be applied to data-driven real-time prediction and decision support in complex data stream environments.

About the Speaker

Distinguished Professor Jie LU is a world-renowned scientist in the field of computational intelligence, primarily known for her work in concept drift, fuzzy transfer learning, recommender systems, and decision support systems. She is an IEEE Fellow, IFSA Fellow, Australian Computer Society Fellow, and Australian Laureate Fellow. Prof. Lu is the Director of the Australian Artificial Intelligence Institute (AII) at University of Technology Sydney (UTS), Australia. She has published six research books and over 500 papers in leading journals and conferences; won 10 Australian Research Council (ARC) Discovery Projects as leading chief investigator and over 20 Linkage and industry projects; and has supervised 50 PhD students to completion. Prof Lu serves as Editor-In-Chief for Knowledge-Based Systems and International Journal of Computational Intelligence Systems. She is a recognized keynote speaker, delivering over 40 keynote speeches at international conferences. She is the recipient of NeurIPS Outstanding Paper Award (2022), two IEEE Transactions on Fuzzy Systems Outstanding Paper Awards (2019 and 2022), Australasian Artificial Intelligence Distinguished Research Contribution Award (2022), Australian NSW Premier's Prize on Excellence in Engineering or Information & Communication Technology (2023) and the Officer of the Order of Australia (AO) in the Australia Day 2023.