

Data Science Seminar Series

In Collaboration with
The Department of Data Science

Empowering Graph Intelligence Via Natural and Artificial Dynamics

Hosted by Hai Phan

Dongqi Fu

University of Illinois Urbana-Champaign

Date: Thursday, February 8, 2024
Time: 2:30 PM - 3:30 PM (Coffee served at 2:15 PM)
Location: GITC Building Room 4402 (4th floor lecture hall)
Web Link: [Zoom Meeting Link](#)

In the era of big data, the relationship between entities has become much more complex than ever before. As a kind of relational data structure, graphs (or networks) attract much research attention for dealing with this unprecedented phenomenon. In the long run, graph research and AI developments face two general challenges when adapting to the complexities of the real world. Firstly, the graph structure and attributes may evolve over time (i.e., time-evolving topological structures, time-evolving node/graph attributes/labels, etc.). The resulting problems include but are not limited to ignoring entity temporal correlation, overlooking causality discovery, computation inefficiency, non-generalization, etc. Secondly, the initial state of graphs may be imperfect (e.g., having connection errors, sampling noises, missing features, scarce labels, hard-to-interpret, redundant, privacy-leaking, robustness-lacking, etc.). The corresponding problems include but are not limited to non-robustness, indiscriminative representations, non-generalization, etc. Hence, this research talk will concentrate on investigating how to study (1) Natural Dynamics (e.g., leveraging spatial-temporal properties of graphs) and (2) Artificial Dynamics (e.g., augmenting and pruning graph components) for Graph Mining, Graph Representations, and Graph Neural Networks to achieve task performance upgrades in accuracy, efficiency, trustworthiness, etc.

Dongqi Fu is a final-year Ph.D. Candidate in Computer Science from the University of Illinois Urbana-Champaign. He is interested in developing AI, machine learning, and data mining algorithms on graph data (i.e., non-IID, relational, non-grid, non-Euclidean data) to support various applications. Dongqi used to be a research scientist intern at Meta AI and IBM T.J. Watson Research for graph deep learning and applications. His research has been recognized by many premium conferences (e.g., ICLR, KDD, WWW, SIGIR, CIKM, etc.) and selective awards (e.g., 2023 Rising Star in Data Science by UChicago and UC San Diego, 2023 C.W. Gear Outstanding Graduate Student by UIUC, 2022 Top 8% Reviewer by NeurIPS, etc.).