Frontiers of Graph Neural Networks with the Dive-Into-Graphs (DIG) Library

Graph deep learning has been drawing increasing attention due to its effectiveness in learning from rich graph data. It has achieved remarkable successes in many domains such as social networks, drug discovery, and physical simulations. Recently, several frontier research topics of graph neural networks (GNNs) enable more effective and trustworthy models for graph deep learning. Specifically, self-supervised learning is emerging as a promising paradigm to make use of large amounts of unlabeled graph data to boost the GNN performance under limited label availability. In addition, the study of explainability enables human-intelligible explanations for the black-box GNN models to build trustworthy AI by identifying important graph substructures that contribute to model decisions. In the tutorial, the speakers will cover fundamentals of GNNs, challenges, and up-to-date approaches of the two frontier topics. The speakers will also introduce the DIG library for graph deep learning research with hands-on demonstrations.

This tutorial workshop consists of a 90-minute lecture and a 30-minute practical session with a short break in between. For attending the practical session, audience need to bring their own devices, and are advised to have Python 3.7 or higher version as well as pre-install the DIG library following the instructions at https://github.com/divelab/DIG. The audiences are recommended to have access to GPU servers in case they would like to run the demo with GPU acceleration. Registration is not needed.

Background knowledge advisable: Participants should have at least a basic understanding of undergraduate level linear algebra and probability. Some background in machine learning and experience with PyTorch is recommended.

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Date: Monday, September 19
Time: 2:00 – 4:00 p.m. US Central Time
Location: Blocker 220 (in person)
Online: 998 4499 3279 (ID) & 724615 (PWD)
Faculty host: Yu Ding, TAMIDS

Biography

Dr. Shuiwang Ji is currently a Professor and Presidential Impact Fellow in the Department of Computer Science and Engineering, Texas A&M University. His research interests include artificial intelligence, machine learning, and graph analysis. This tutorial is to be assisted by his Ph.D. students, Yaochen Xie, Zhao Xu, and Haiyang Yu.

You can also click this link to join the seminar https://tamu.zoom.us/j/99844993279?pwd=TkJodWFVRURyMmkwakI4SWZGeVJTQT09