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 boardly applicable models for graph deep learning. Specifically, graph generative methods aims to capture graph data distributions and learns to generate new graphs with certain properties. It has significant applications in various fields, including drug discovery and material science. In addition, 3D graph representation learning is an important direction for modeling any atomic systems, such as molecular geometries and point clouds. In the tutorial, the speakers will cover the key problem considerations 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 is the second part of the GNN tutorial. The first part was conducted on September 19, 2022. One can access the first part of the tourial at TAMIDS archives.

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 experience with PyTorch is expected.

Professor Shuiwang Ji, and graduate students, Meng Liu, Youzhi Luo, Limei Wang

Dept. of Computer Science and Engineering
Texas A&M University

Date: Monday, April 10
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.

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