YIFAN HOU

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EDUCATION

The Chinese University of Hong Kong   2018 - Present
Department of Computer Science and Engineering   GPA: 3.87/4.0
M.Phil. in Computer Science and Engineering
Advisor: Prof. James CHENG   Anticipated Graduation: June, 2020

Huazhong University of Science and Technology   2014 - 2018
School of Electronic Information and Communications   GPA: 3.59/4.0
B.Eng. in Information Science for Advanced Class in Mathematics and Physics

EXCHANGES

National University of Singapore *(Summer Intern)*   June 2019 - September 2019
Analyzing Graph Neural Networks based on Information Theory
Advisor: Prof. Richard T. B. Ma

University of Illinois at Urbana-Champaign *(Summer Exchange)*   July 2017 - August 2017
Information Science and Engineering Summer School Program (Network Analysis)

CURRENT RESEARCH FOCUS

Graph neural networks; graph representation learning; graph embedding

PUBLICATIONS

Yifan Hou, Hongzhi Chen, Changji Li, James Cheng, and Ming-Chang Yang. A representation learning framework for property graphs. In *Proceedings of the 25th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining*, pages 65–73, 2019.

Yifan Hou, Pan Zhou, Jie Xu, and Dapeng Oliver Wu. Course recommendation of MOOC with big data support: A contextual online learning approach. In *IEEE Conference on Computer Communications Workshops, INFOCOM Workshops*, pages 106–111, 2018.

Hongzhi Chen, Xiaoxi Wang, Chenghuan Huang, Juncheng Fang, **Yifan Hou**, Changji Li, and James Cheng. Large scale graph mining with g-miner. In *Proceedings of the 2019 ACM SIGMOD International Conference on Management of Data*, pages 1881–1884, 2019.

Hongzhi Chen, Changji Li, Juncheng Fang, Chenghuan Huang, James Cheng, Jian Zhang, **Yifan Hou**, and Xiao Yan. Grasper: A high performance distributed system for OLAP on property graphs. In *Proceedings of the ACM Symposium on Cloud Computing (SoCC)*, pages 87–100, 2019.

SUBMITTED PAPERS

Yifan Hou, Jian Zhang, James Cheng, Kaili Ma, Richard T. B. Ma, Hongzhi Chen, Ming-Chang Yang. A research paper about graph neural networks[1]. Submitted to *International Conference on Learning Representations, ICLR*, 2020. (**review score ranks top 5.8% to 6.9%**)

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[1] Under double blind peer review

SELECTED RESEARCH PROJECTS

Graph Representation Learning for Property Graphs   Published in KDD 2019
Department of Computer Science and Engineering (CUHK)

· Proposed a three-step framework that is capable of capturing the differences among neighbors for better neighborhood aggregation.
· Extended the framework to support edge properties and edge direction by multiple channels in neighborhood aggregation.
· Evaluated existing graph representation learning algorithms/frameworks: DeepWalk, node2vec, GCN and GraphSAGE.

Graph Neural Network Analysis   Submitted to ICLR 2020
Department of Computer Science and Engineering (CUHK)

· Proposed a general Graph Neural Network framework and defined the information gain from neighborhood in aggregation.
· Proposed two graph smoothness metrics to measure the quantity and quality of information gain from graph data.
· Proposed a new improved Graph Neural Network model that utilizes the two smoothness metrics to maximize information gain and reduce noises.
· Evaluated existing graph algorithms: struc2vec, GraphWave, Label Propagation, GCN, GraphSAGE and GAT.

Multi-Armed Bandits of Reinforcement Learning   Published in INFOCOM 2018
School of Electronic Information and Communications (HUST)

· Proposed a contextual online learning algorithm for course recommendation, with preferences of users considered.
· Extended continuous multi-armed bandits algorithm ($\mathcal{X}$-armed bandits) to support discrete connected course data.
· Proved the upper bound of our model (continuous arm space and contextual support) is sublinearly related to time.

Graph Query Processing Systems   Published in SIGMOD 2019 and SoCC 2019
Department of Computer Science and Engineering (CUHK)

· Cleaned large-scale connected datasets (up to 500GB) derived from wiki, twitter, amazon, etc., and converted them to property graph format.
· Evaluated graph databases (e.g., OrientDB) on query latency and throughput with distributed implementation.

SELECTED AWARDS

The National Scholarship: The highest award for students in China	2016
Outstanding Graduates Awards (HUST): The highest student achievement at HUST	2018
Student Travel Award (KDD)	2019

SKILLS

Languages:	Mandarin (native), English (Fluent)
Programming Languages:	Python (Expert), C++ (Proficient), C (Intermediate), MATLAB (Intermediate)
Machine Learning Libraries:	PyTorch (Expert), NumPy (Expert), scikit-learn (Expert), NetworkX (Expert), DGL (Expert), TensorFlow (Proficient), PyTorch Geometric (Proficient), PyGSP (Proficient)
Operating Systems:	Linux (Expert), Pregel+ (Intermediate), G-Miner (Intermediate)