YIFAN HOU

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RM 122(A), Ho Sin Hang Engineering Building, The Chinese Universtiy of Hong Kong

EDUCATION & EXPERIENCE

The Chinese University of Hong Kong 2018 - Present
Department of Computer Science and Engineering GPA: 3.85/4.0
MPhil (Master of Philosophy) in Computer Science and Engineering
Advisor: James CHENG and Ming-Chang Yang Anticipated Graduation: June, 2020

Huazhong University of Science and Technology 2014 - 2018
School of Electronic Information and Communications GPA: 3.6/4.0, Ranking: 7/30
BEng in Information Science for Advanced Class in Mathematics and Physics

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National University of Singapore *(Summer Intern)* June 2019 - September 2019
Analyze Graph Neural Networks based on Information Theory
Advisor: 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)

SELECTED RESEARCH PROJECTS

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

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

Graph Neural Networks Analysis Submitted to ICLR 2020 (**review score ranks 5.8% to 6.9%**)
Department of Computer Science and Engineering (CUHK)

- Propose a general Graph Neural Networks framework and define the information gain from neighborhood in aggregation.
- Propose two smoothness metrics of graph data to measure the quantity and quality of the information gain.
- Evaluate 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)

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

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

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

PUBLICATIONS

Yifan Hou, Hongzhi Chen, Changji Li, James Cheng, and Ming-Chang Yang. *A Representation Learning Framework for Property Graphs,* ACM SIGKDD, 2019

Yifan Hou, Pan Zhou, Jie Xu, and Dapeng Oliver Wu. *Course Recommendation of MOOC with Big Data Support: A Contextual Online Learning Approach,* IEEE INFOCOM WKSHPS, 2018

Hongzhi Chen, Xiaoxi Wang, Chenghuan Huang, Juncheng Fang, **Yifan Hou**, Changji Li and James Cheng. *Large Scale Graph Mining with G-Miner,* ACM SIGMOD DEMO, 2019

Hongzhi Chen, Changji Li, Juncheng Fang, Chenghuan Huang, James Cheng, Jian Zhang, **Yifan Hou**, Xiao Yan. *Grasper: A High Performance Distributed System for OLAP on Property Graphs,* ACM SoCC, 2019

SELECTED AWARDS

The National Scholarship (Central Government): The highest award for students in China 2016
Outstanding Graduates Awards (HUST): To honor the highest student achievement 2018
Student Travel Award (KDD): To encourage student participation at the conference 2019

RESEARCH INTERESTS

Graph graph neural networks; graph representation learning; graph embedding; graph mining
Artificial Intelligence machine learning; deep learning; reinforcement learning