

# YIFAN HOU

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RM 122(A), Ho Sin Hang Engineering Building, The Chinese University 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

**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  
*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 (continuous arm space and contextual support) is sublinearly related to time.

**Graph Query System** Published in SIGMOD 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  
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  
**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

## 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

## INTERESTS & SKILLS

**Interests** graph neural networks; graph embedding; machine learning  
**Skills** familiar with python, PyTorch, TensorFlow, DGL and Linux; good at signal processing and mathematics