Xinyu Fu 付新宇

Ph.D. Candidate in Computer Science and Engineering

Department of Computer Science and Engineering, The Chinese University of Hong Kong, Hong Kong SAR

xyfu@cse.cuhk.edu.hk | cynricfu.github.io | cynricfu | cynricfu

Education

The Chinese University of Hong Kong (CUHK) — *Hong Kong SAR, China*

Doctor of Philosophy in Computer Science and Engineering — *Aug. 2018 - Present*

- Supervised by Prof. Irwin King
- Research Interest: **heterogeneous graph neural network**, **federated graph learning**

The Chinese University of Hong Kong (CUHK) — *Hong Kong SAR, China*

Bachelor of Science in Computer Science — *Sep. 2016 - July 2018*

- Cumulative GPA: 3.71/4.00 Major GPA: 3.86/4.00
- ELITE Stream Student Scholarship, Dean's List

Sun Yat-Sen University (SYSU) — *Guangzhou, China*

CUHK-SYSU Engineering Undergraduate Programme — *Sep. 2014 - July 2016*

- GPA: 3.9/4.0
- Second-class Scholarship

Research Experience

FedHGN: A Federated Framework for Heterogeneous Graph Neural Networks — *CUHK, Hong Kong SAR*

Postgraduate Research — *Aug. 2023*

- **Xinyu Fu**, Irwin King. **Accepted to IJCAI 2023**
- Proposed a federated learning framework for heterogeneous GNNs
- First to investigate schema privacy protection in federated heterogeneous graph learning

Metapath Context Convolution-based Heterogeneous Graph Neural Networks — *CUHK, Hong Kong SAR*

Postgraduate Research — *Nov. 2021 - Jul. 2022*

- **Xinyu Fu**, Irwin King. **Under review by Neural Networks**
- Proposed a novel method to accelerate metapath-based heterogeneous GNNs
- Achieved improved prediction accuracy and computational efficiency on five real-world datasets

Drug Repurposing via Graph Representation Learning on Biomedical KG — *AWS, Shanghai*

Research Intern — *May 2020 - Nov. 2020*

- Drug repurposing: to find new therapeutic indications for existing drugs
- Developed a drug repurposing framework via learning from biomedical knowledge graphs
- Explored various backend graph embedding methods with extensive experiments

MAGNN: Metapath Aggregated Graph Neural Networks for Heterogeneous Graph Embedding — *CUHK, Hong Kong SAR*

Postgraduate Research — *Apr. 2020*

- **Xinyu Fu**, Jiani Zhang, Ziqiao Meng, Irwin King. **Accepted as a full paper to WWW 2020**
- **Over 500 citations** on Google Scholar
- Proposed a novel GNN architecture aggregating metapath instances on heterogeneous networks
- Obtained state-of-the-art results in node classification/clustering and link prediction on three real-world datasets

Presentation

AI for non-AI Researchers — *Hong Kong SAR, China*

CUHK Library Research Computing Café — *Sep. 2023*

- Introduced AI-powered tools and domain researches for non-AI researchers

Trustworthy Federated Learning: Concepts, Methods, Applications, and Beyond — *Gold Coast, Australia*

International Joint Conference on Neural Networks 2023 — *June 2023*

- Introduced trustworthy federated learning techniques in terms of privacy, security, and robustness

Heterogeneous Graph Neural Networks Recent Research Progress — *Online*

Learning on Graphs Seminar — *Jan. 2023*

- Shared personal research progress on heterogeneous graph neural networks

Deep Learning on Graphs *Spain*

DeepLearn 2022 Summer *July 2022*

- Introduced recent research progress on deep graph representation learning

Deep Learning on Graphs: Methods and Applications *Online*

International Conference on Neural Information Processing 2020 *Nov. 2020*

- Introduced recent research progress on deep graph representation learning

Services

Conference Reviewer NeurIPS (2021), WWW (2022, 2023, 2024), WSDM (2023), AAAI (2023, 2024), ECML-PKDD (2023)

Journal Reviewer TKDE, TPAMI, TNNLS, TSC, NEUNET, PR, FGCS, TNSE

Skills

Programming Python, C/C++, Linux, LaTeX, Markdown

Framework PyTorch, DGL, TensorFlow

Languages Mandarine (Native), English (Fluent), Cantonese (Intermediate)

Honors & Awards

2019 **Best TA Award**, Department of Computer Science and Engineering, CUHK *Hong Kong SAR*

2018 **Dean's List**, Faculty of Engineering, CUHK *Hong Kong SAR*

2017 **ELITE Stream Student Scholarship**, Faculty of Engineering, CUHK *Hong Kong SAR*

2017 **Dean's List**, Faculty of Engineering, CUHK *Hong Kong SAR*

2016 **Honorable Mention**, The Mathematical Contest in Modeling (MCM) *U.S.A.*