ZIXING SONG

Research Interests: Graph Neural Networks, AI for Science, Graph-based SSL
songzixing98@@gamil.com | Shatin, N.T., Hong Kong SAR

EDUCATION

The Chinese University of Hong Kong — Shatin, Hong Kong SAR
Ph.D. Student in Computer Science and Engineering — August 2020 – Present
Research Area: **Graph Neural Networks, AI for Science, Graph-based Semi-supervised Learning**
Supervisor: Prof. Irwin King (IEEE Fellow, ACM Distinguished Member)

Southeast University — Nanjing, China
B.Eng. in Computer Science — August 2016 – June 2020
GPA: 3.9/4.0, Rank: 3/162

EXPERIENCES

Ph.D. Student, The Chinese University of Hong Kong (CUHK) — August 2020 – Present
Supervisor: Prof. Irwin King — Shatin, Hong Kong SAR
- Conducted research on graph-based semi-supervised learning and related Graph Neural Networks applications

Visiting Student, King Abdullah University of Science and Technology — December 2022 – February 2023
Host: Prof. Di Wang — Thuwal, Saudi Arabia
- Proposed a fairness-aware GNN model on temporal graphs and an equivariant GNN model for crystal

Applied Scientist Intern, Amazon Web Services (AWS) — June 2022 – August 2022
Mentor: Wei Zheng — Seattle, United States
- Worked on GNN inference acceleration

Research Intern, Microsoft Research Asia (MSRA) — January 2020 – May 2020
Mentors: Ze Gan, Dr. Peng Cheng, Dr. Yongqiang Xiong — Beijing, China
- Builded a GPU scheduling simulator for training distributed deep learning models

Software Engineer Intern, Alibaba Group — August 2019 – December 2019
Mentor: Dr. Liping Zhang — Hangzhou, China
- Worked as a Full Stack Developer with React and Spring Boot frameworks at Ali Cloud Team

Research Intern, University of Toronto (UofT) — May 2019 – August 2019
Mentor: Prof. Oleksandr Romanko — Ontario, Canada
- Developed a personalized learning tool that delivers interactive online courses

Research Assistant, Southeast University (SEU) — September 2018 – May 2019
Mentors: Dr. Zhihan Fang, Prof. Shuai Wang, Prof. Desheng Zhang, Prof. Tian He — Nanjing, China
- Conducted research on Internet of Things (IoT) and machine learning in the extreme-scale urban infrastructure

PUBLICATIONS (DBLP)

Referred Conference Publications:

1. **[NeurIPS 2022 WS] Zixing Song**, Yueen Ma, Irwin King, "Individual Fairness in Dynamic Financial Networks", in the New Frontiers in Graph Learning (GLFrontiers) Workshop at the 36th Conference on Neural Information Processing Systems, New Orleans, USA, Nov 28 - Dec 9, 2022.
2. **[KDD 2022] Zixing Song**, Yifei Zhang, Irwin King, "Towards an Optimal Asymmetric Graph Structure for Robust Semi-supervised Node Classification", in the 28th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining, Washington DC, USA, August 14 - 18, 2022. *[Acceptance Rate: 15.0%]*

3. **[AAAI 2022] Zixing Song**, Irwin King. "Hierarchical Heterogeneous Graph Attention Network for Syntax-Aware Summarization", in the 36th Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence, Vancouver, Canada, February 22 - March 1, 2022. *[Acceptance Rate: 15.0%]*
4. **[CIKM 2021] Zixing Song**, Ziqiao Meng, Yifei Zhang, Irwin King, "Semi-supervised Multi-label Learning for Graph-structured Data", in the 30th ACM International Conference on Information and Knowledge Management, pages 1723-1733, Queensland, Australia, November 1 - 5, 2021. *[Acceptance Rate: 21.7%]*
5. **[NeurIPS 2021 WS]** Yiming Sun*, **Zixing Song***, Irwin King, (*Equal Contribution), "Score-based Graph Generative Model for Neutrino Events Classification and Reconstruction", in the Machine Learning and the Physical Sciences Workshop at the 35th Conference on Neural Information Processing Systems, Virtual, December 6 - 14, 2021.
6. **[AAAI 2023]** Yueen Ma, **Zixing Song**, Xuming Hu, Jingjing Li, Yifei Zhang, Irwin King, "Graph Component Contrastive Learning for Concept Relatedness Estimation", in the 37th Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence, Washington DC, USA, February 7 - 14, 2023. *[Acceptance Rate: 19.6%]*
7. **[AAAI 2023]** Yifei Zhang, Hao Zhu, **Zixing Song**, Piotr Koniusz, Irwin King, "SFA: Spectral Feature augmentation for Graph Contrastive Learning", in the 37th Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence, Washington DC, USA, February 7 - 14, 2023. *[Acceptance Rate: 19.6%]*
8. **[KDD 2022]** Yifei Zhang, Hao Zhu, **Zixing Song**, Piotr Koniusz, Irwin King, "COSTA: Covariance-Preserving Feature Augmentation for Graph Contrastive Learning", in the 28th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining, Washington DC, USA, August 14 - 18, 2022. *[Acceptance Rate: 15.0%]*
9. **[UbiComp 2019]** Zhihan Fang, Yu Yang, Shuai Wang, Boyang Fu, **Zixing Song**, Fan Zhang, Desheng Zhang, "MAC: Measuring the Impacts of Anomalies on Travel Time of Multiple Transportation Systems", in the ACM International Joint Conference on Pervasive and Ubiquitous Computing, London, United Kingdom, September 9 - 13, 2019.

Referred Journal Publications:

1. **[TNNLS] Zixing Song**, Xiangli Yang, Zenglin Xu, Irwin King, "Graph-based Semi-supervised Learning: A Comprehensive Review", in IEEE Transactions on Neural Networks and Learning Systems.
2. **[TKDE]** Xiangli Yang, **Zixing Song**, Irwin King, Zenglin Xu, "A Survey on Deep Semi-supervised Learning", in IEEE Transactions on Knowledge and Data Engineering.

AWARDS

ICML Best Reviewers (Top 10%), International Conference on Machine Learning (ICML)	2022
KDD Student Travel Award, The Association for Computing Machinery (ACM)	2022
AAAI Student Scholarship, Association for the Advancement of Artificial Intelligence (AAAI)	2022
SIGIR Student Travel Grant, The Association for Computing Machinery (ACM)	2021
CUHK Postgraduate Studentships, The Chinese University of Hong Kong	2020-2024
National Scholarship, Ministry of Education of the P.R. China	2017

SKILLS

Programming Languages: Python, Matlab, C/C++, Java, JavaScript

Deep Learning Frameworks: PyTorch, TensorFlow, Keras

Developer Tools: Git, Docker, Visual Studio Code, AWS

Libraries: PyTorch Geometric, DGL