Yifei, ZHANG

CONTACT INFO	✉: yifeiacc@gmail.com (prefered) ✉: yifei.zhang@ntu.edu.sg ✆: yfzhang1124	**G**: Google Scholar Page [Citation 750, h-index 15] **in**: Linkedin Page **iD**:0000-0003-4185-8663

RESEARCH INTERETS

My research interests lie in the bridge of foundation models and graph. I study both the theory and the application of self-supervised learning (SSL) on graphs and other modalities (image, text). I currently working information retrieval relate topic such as Retrieval-Augmented Generation (RAG) and trustworthy Large Language Modeling.

EDUCATION

🎓 **The Chinese University of Hong Kong** Aug. 2020 - July 2024
Ph.D. in Comp. Sci. & Eng. Hong Kong, China
Advised by Prof. Irwin King (AAAS & IEEE Fellow, ACM Distinguish Member)

🎓 **The Australian National University** July 2016 - July 2018
MPhil. in Computer Science , Computational Media Lab. Canberra, Australia
Worked with Prof. Marian-Andrei Rizoiu and Prof. Lexing Xie.

🎓 **ZhengZhou University** Sep. 2012 - July 2016
B.Eng. in Electrical Engineering ZhengZhou, China

POS-DOC EXPERIENCE

🎓 **Nanyang Technological University** Oct. 2024 - Oct. 2025
Research Scientist, College of Computing and Data Science Singapore
Work with Prof. Yu Han

🎓 **The Chinese University of Hong Kong** Aug 2024 - Oct. 2024
Honorary Postdoctoral Association, Dept. of Comp. Sci. & Eng. Hong Kong, China
Work with Prof. Irwin King

PRE-DOC EXPERIENCE

📊 **Alibaba Group** Hangzhou, China
Senior Applied Machine Leaning Engineer (Full Time) May 2019 - Aug. 2020
- Work on Search and Recommendation System

📊 **JD.com** July 2018-May 2019
Applied Machine Leaning Engineer (Full Time) Beijing, China
- Developed a series of Privacy-Preserving Machine Learning (PPML) techniques

📊 **CRISO's Data61** Canberra, Australia
Research Intern Nov. 2016 - Mar. 2017
- Quantify the role and influence of social bots in the democratic process[6].

SELECTED HONORS & AWARDS

🏆 Awardee of Huawei TopMinds Program (Special Program for Talent Candidates) Spring 2024
🏆 Awardee of Mei Tuan BeiDou Program (Special Program for Talent Candidates) Spring 2024
🏆 Hong Kong Postgraduate Studentships Award (CUHK) Autumn 2020
🏆 CECS Deans List(ANU) Autumn 2018

IN REVIEWING & PREPRINT

[1] **[Preprint]** Recent Advances of Multimodal Continual Learning: A Comprehensive Survey
Dianzhi Yu, Xinni Zhang, Yankai Chen, Aiwei Liu, **Yifei Zhang**, Philip S. Yu, Irwin King

[2] **[Preprint]** Can Watermarked LLMs be identified by Users via Crafted Prompts
Aiwei Liu, Sheng Guan, Yiming Liu, Leyi Pan, **Yifei Zhang**, Liancheng Fang, Lijie Wen, Philip S. Yu, Xuming Hu.
[Submit to ICLR'25].

[3] **[Preprint]** PISA: Compressive Sensing Adaptation of Large Language Models
Minxue Xia, Hao Zhu, **Yifei Zhang***
[Submit to ICLR'25].

[4] **[Preprint]** Less is More: Extreme Gradient Boost Rank-1 Adaption for Efficient Finetuning of LLMs
Yifei Zhang, Hao Zhu, Aiwei Liu, Han Yu, Piotr Koniusz and Irwin King
[Submit to ICLR'25].

[5] **[Preprint]** Understanding and Mitigating Hyperbolic Dimensional Collapse in Graph Contrastive Learning
Yifei Zhang, Hao Zhu, Mengling Yang, Jiahong Liu, Rex Ying, Piotr Koniusz and Irwin King
[Submit to KDD'25].

[6] **[Preprint]** Outlier-aware Projected Wasserstein Distances for Few-Shot Open-set Learning
Yifei Zhang, Hao Zhu, Yuchao Dai, Piotr Koniusz and Irwin King
[Submit to AAAI'25].

JOURNAL
PUBLICATIONS

[7] **[TKDE]** Towards Effective Top-N Hamming Search viaBipartite Graph Contrastive Hashing
In IEEE Transactions on Knowledge and Data Engineering
Yankai Chen, Yixiang Fang, **Yifei Zhang**, Chenhao Ma, and lrwin King   IF:9.23

[8] **[TIST]** A Survey of Trustworthy Federated Learning: Issues, Solutions, and Challenges In
ACM Transactions on Intelligent Systems and Technology.
Yifei Zhang, Dun Zeng, Jinglong Luo, Xinyu Fu, Zenglin Xu, Irwin King   IF:10.48

CONFERENCE
PUBLICATIONS

[9] **[IJCAI'24]** A Systematic Survey on Federated Semi-supervised Learning. In Internationl Joint
Conference on Artificial Interligence
Zixing Song **Yifei Zhang**, Zengling Xu, and Irwin King   CCF-A

[10] **[KDD'24]** Geometric View of Soft Decorrelation in Self-Supervised Learning. In SIGKDD
Conference on Knowledge Discovery and Data Mining.
Yifei Zhang, Hao Zhu, Zixing Song, Yankai Chen, Ziqiao Meng, Piotr Koniusz and Irwin
King   CCF-A
[20.12% of acceptance, 409/2046].

[11] **[NAACL'24]** Towards Efficient Federated Multilingual Modeling with LoRA-based Language
Family Clustering. In Conference on Neural Information Processing Systems
In 2024 Annual Conference of the North American Chapter of the Association for Computational Linguistics.
Zhihan Guo, **Yifei Zhang**, Zhuo Zhang, Zenglin Xu and Irwin King.   CCF-B

[12] **[NeurIPS'23]** **(Spotlight, Top 2%)** Mitigating the Popularity Bias in Graph Collaborative Filtering: A Dimensional Collapse Perspective. In Conference on Neural Information Processing
Systems
Yifei Zhang, Hao Zhu, Yankai Chen, Zixing Song, Piotr Koniusz and Irwin King   CCF-A
[26.1% of acceptance,3218/12343].

[13] **[NeurIPS'23]** **(Spotlight, Top 2%)** No Change, No Gain: Empowering Graph Neural Networks
with Expected Model Change Maximization for Active Learning. In Conference on Neural
Information Processing Systems
Zixing Song **Yifei Zhang**, and Irwin King   CCF-A
[26.1% of acceptance, 3218/12343].

[14] **[NeurIPS'23]** Optimal Block-wise Asymmetric Graph Construction for Semi-supervised Learning. In Conference on Neural Information Processing Systems
Zixing Song **Yifei Zhang**, and Irwin King   CCF-A
[26.1% of acceptance, 3218/12343].

[15] **[KDD'23]** Cross-Scale Contrastive Graph Knowledge Synergy. In SIGKDD Conference on
Knowledge Discovery and Data Mining.
Yifei Zhang, Yankai Chen, Zixing Song, and Irwin King   CCF-A
[22.12% of acceptance, 313/1416].

[16] **[SIGIR'23]** WSFE: Wasserstein Sub-graph Feature Encoder for Effective User Segmentation
in Collaborative Filtering.In International ACM SIGIR Conference on Research and Development in Information Retrieval.
Yankai Chen, **Yifei Zhang**, Zixing Song, Menlin Yang, Ma Chen, and Irwin King   CCF-A
[25.12% of acceptance, 154/613]

[17] **[WWW'23]** Bipartite Graph Convolutional Hashing for Effective and Efficient Top-N Search in
Hamming Space.. In Proceedings of The Web Conference 2023.
Yankai Chen, Yixiang Fang , **Yifei Zhang** and Irwin King   CCF-A
[19.2% of acceptance, 365/1900].

[18] **[AAAI'23]** **(Oral, Top 10%)** Spectral Feature augmentation for Graph Contrastive Learning.
In Thirty-Seventh AAAI Conference on Artificial Intelligence.
Yifei Zhang, Hao Zhu, Zixing Song, Piotr Koniusz and Irwin King   CCF-A
[19.8% acceptance, 1721/8777]

[19] **[AAAI'23]** Graph Component Contrastive Learning for Concept Relatedness Estimation. In Thirty-Seventh AAAI Conference on Artificial Intelligence
Yueen Ma, Zixing Song, Xuming Hu., Jingjing Li. **Yifei Zhang** and Irwin King   CCF-A
[19.8% acceptance, 1721/8777]

[20] **[KDD'22]** COSTA: Covariance Preserved Feature Augmentation for Graph Contrastive Learning. In SIGKDD Conference on Knowledge Discovery and Data Mining.
Yifei Zhang., Hao Zhu, Ziqiao Meng, Piotr Koniusz and Irwin King   CCF-A
[14.9% acceptance, 254/1695].

[21] **[KDD'22]** Towards an Optimal Asymmetric Graph Structure for Robust Semi-supervised Node Classification. In SIGKDD Conference on Knowledge Discovery and Data Mining
Zixing Song, **Yifei Zhang**, and Irwin King   CCF-A
[14.9% acceptance, 254/1695].

[22] **[WWW'22]** Graph-adpative Rectified Linear Unit for Graph Neural Networks. In Proceedings of The Web Conference 2022.
Yifei Zhang, Hao Zhu, Ziqiao Meng, Piotr Koniusz and Irwin King   CCF-A
[17.7% of acceptance, 232/1822].

[23] **[CIKM'21]** Semi-supervised Multi-label Learning for Graph-structured Data. In Proceedings of the 30th ACM International Conference on Information & Knowledge Management.
Zixing Song, Ziqiao Meng, **Yifei Zhang**, and Irwin King   CCF-B
[21.7% acceptance (271/1251)]

[24] **[ICASSP'20]** Discrete Wasserstein Autoencoders for Document Retrieval. In 2020 IEEE International Conference on Acoustics, Speech and Signal Processing.
Yifei Zhang and Hao Zhu   CCF-B

[25] **[NAACL'19]** Doc2hash: Learning Discrete Latent variables for Documents Retrieval. In Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies.
Yifei Zhang and Hao Zhu   CCF-B
[26.3% acceptance (281/1067)].

[26] **[ICWSM'18]** #DebateNight: The Role and Influence of Socialbots on Twitter During the 1st 2016 US Presidential Debate. In Twelfth International AAAI Conference on Web and Social Media.
Rizoiu, M. A., Graham, T., Zhang, R., **Yifei Zhang**, Ackland, R., Lexing Xie   CCF-B

WORKSHOP

[27] **[IJCAI'19-FLW]** Deep Neural Network for Asymmetrically Collaborative Machine Learning with Additively Homomorphic Encryption. In The 1st International Workshop on Federated Machine Learning for User Privacy and Data Confidentiality.
Yifei Zhang and Hao Zhu
Solutions have been included in **FATE**, an industry level open source library for federated learning. See *this* for detail

[28] **[WWW'23-FLW]** A Survey of Trustworthy Federated Learning with Perspectives on Security, Robustness, and Privacy.
Yifei Zhang, Dun Zeng, Jinglong Luo., Zenglin Xu., and Irwin King

FUNDING PROPOSAL

I possess extensive experience in writing and managing funding proposals. I have successfully contributed to securing several grants, including:

- Hong Kong Collaborative Research Funding (CRF) 2023: Trustworthy AI with Federated Foundation Models: Theory and Application   10,000,000HKD

- National Natural Science Foundation of China (NSFC) / Research Grants Council (RGC) Joint Research Scheme (JRS) 2023/24 Heterogeneous Graph Federated Learning with Robustness and Security: Theory and Applications   1,250,000HKD

- Hong Kong Research Grants Council (RGC) Strategic Topics Grant (STG) 2022 Federated Learning AI Research (FLAIR) for Smart Medicine and Digital Healthcare   40,000,000HKD

- Hong Kong Government Research Funding (GRF) 2023 Federated Semi-supervised Graph Learning: Theory and Applications   800,000HKD

SELECTED TALKS	I was invited by various organizations and media to give talk on several research topics	

💬 "Self-supervised Learning on Graph: From Theory to Pracetive", Zhejiang University, cover by AI Times and Paperweekly

💬 "Covariance Preserved Contrastive Learning", Online, cover by AI Times and Paperweekly

💬 "Spectral View on Self-supervised learning", Huawei, LoG Seminar

💬 "Graph Representation Learning and its application", Xi'an, Northwestern Polytechnical University

TEACHING ASSISTANT	
🏛 CSCI2100A: Data Structure (Head TA)	Spring 2023
🏛 CSCI3150: Computer Science and Society	Spring 2022
🏛 CSCI5650: Graph Neural Networks (Graduated-Level Course)	Autumn 2021
🏛 CSCI3150: Computer Science and Society	Spring 2021
🏛 CSCI1130: Introduction to Computing Using Java	Autumn 2020

ACADEMIA ACTIVITY

👤 **Program Committee/Conference Reviewer**

- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2022, 2023
- AAAI Conference on Artificial Intelligence (AAAI) 2022, 2023
- Conference on Neural Information Processing Systems (NeurIPS) 2022, 2023
- International Conference on Learning Representation (ICLR) 2023, 2024
- International Conference on Machine Learning (ICML) 2022, 2023 2024
- International World Wide Web Conference (TheWebConf) 2022, 2023

👤 **Journal Reviewer**

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- ACM Transactions on Knowledge Discovery from Data (TKDD)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- Neurocomputing (NEUCOM)