

Yankai Chen

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EDUCATION

- **Ph.D. in Computer Science and Engineering** 2019.08 - 2023.10
– The Chinese University of Hong Kong (CUHK)
- **M.S. in Computer Science and Engineering** 2016.09 - 2018.01
– The University of Hong Kong (HKU)
- **B.S. in Computer Science and Technology** 2012.09 - 2016.06
– Nanjing University (NJU)

RESEARCH INTERESTS

My research interest is machine learning for **Information Retrieval, Processing, Generation, and Protection**, including:

- Graph data mining and learning problems, e.g., GNNs, self-supervised graph learning.
- Data generation problems, e.g., generative models, watermarking techniques.
- AI4DB problems, e.g., ANN search and optimization for vector database, motif prediction.
- Quantization methods for efficient IR processing, e.g., learning to hash, product quantization.
- Recommender systems and enhancing techniques, e.g., knowledge graph supplementary.

EXPERIENCES

- **Applied Scientist Intern, Amazon** 2022.08 - 2022.12
– Personalization Group, Seattle, United States
- **Research Intern, Huawei Noah's Ark Lab** 2021.07 - 2022.05
– Search & Recommendation Group, Beijing, China
- **Research Intern, Huawei Noah's Ark Lab** 2020.10 - 2021.03
– Decision Making & Reasoning Group, Shenzhen, China
- **Research Intern, Microsoft Research Asia** 2020.05 - 2020.09
– System Intelligence Group, Beijing, China
- **Research Associate, Computational Intelligence Lab** 2018.08 - 2019.08
– Nanyang Technological University, Singapore

PUBLICATIONS

Conferences

1. **Mitigating the Popularity Bias in Graph-based Collaborative Filtering** [NeurIPS'23]
 - Yifei Zhang, Hao Zhu, [Yankai Chen](#), Zixing Song, Piotr Koniusz, Irwin King
 - *Advances in Neural Information Processing Systems*, 2023
2. **Contrastive Cross-scale Graph Knowledge Synergy** [SIGKDD'23]
 - Yifei Zhang, [Yankai Chen](#), Zixing Song, Irwin King
 - *The 29th SIGKDD Conference on Knowledge Discovery and Data Mining*, 2023
3. **Topological Representation Learning for E-commerce Shopping Behaviors** [MLG@SIGKDD'23]
 - [Yankai Chen](#), Quoc-Tuan Truong, Xin Shen, Ming Wang, Jin Li, Jim Chan, Irwin King
 - *Workshop on Mining and Learning with Graphs at The 29th SIGKDD Conference on Knowledge Discovery and Data Mining 2023*.
4. **Hierarchical Learning in Hyperbolic Space: Revisit and Beyond** [ICML'23]
 - Menglin Yang, Min Zhou, Rex Ying, [Yankai Chen](#), Irwin King
 - *The 40th International Conference on Machine Learning*, 2023.
5. **WSFE: Wasserstein Sub-graph Feature Encoder for Effective User Segmentation in Collaborative Filtering** [SIGIR'23]
 - [Yankai Chen](#), Yifei Zhang, Menglin Yang, Zixing Song, Chen Ma, Irwin King
 - *The 46th SIGIR Conference on Research and Development in Information Retrieval*, 2023
6. **Bipartite Graph Convolutional Hashing for Effective and Efficient Top-N Search in Hamming Space** [WWW'23]
 - [Yankai Chen](#), Yixiang Fang, Yifei Zhang, Irwin King
 - *The ACM Web Conference*, 2023.

7. **Learning Binarized Graph Representations with Multi-faceted Quantization Reinforcement for Top-K Recommendation** [SIGKDD'22]
 - [Yankai Chen](#), Huifeng Guo, Yingxue Zhang, Chen Ma, Ruiming Tang, Jingjie Li, Irwin King
 - *The 28th SIGKDD Conference on Knowledge Discovery and Data Mining, 2022: 168-178.*
8. **An Effective Post-training Embedding Binarization Approach for Fast Online Top-K Passage Matching** [AAACL'22]
 - [Yankai Chen](#), Yifei Zhang, Huifeng Guo, Ruiming Tang, Irwin King
 - *The 2nd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics and the 12th International Joint Conference on Natural Language Processing, 2022.*
9. **Attentive Knowledge-aware Graph Convolutional Networks with Collaborative Guidance for Personalized Recommendation** [ICDE'22]
 - [Yankai Chen](#), Yaming Yang, Yujing Wang, Jing Bai, Xiangchen Song, Irwin King
 - *The 38th IEEE International Conference on Data Engineering, 2022: 299-311*
10. **Modeling Scale-free Graphs with Hyperbolic Geometry for Knowledge-aware Recommendation** [WSDM'22]
 - [Yankai Chen](#), Menglin Yang, Yingxue Zhang, Mengchen Zhao, Ziqiao Meng, Jianye Hao, Irwin King
 - *The 15th International Conference on Web Search and Data Mining, 2022: 94-102.*
11. **Efficient Community Search over Large Directed Graph: An Augmented Index-based Approach** [IJCAI'20]
 - [Yankai Chen](#), Jie Zhang, Yixiang Fang, Xin Cao, Irwin King
 - *The 29th International Joint Conferences on Artificial Intelligence, 2020: 3544-3550.*
12. **A Literature Review of Recent Graph Embedding Techniques for Biomedical Data** [ICONIP'20]
 - [Yankai Chen](#), Yaozu Wu, Shicheng Ma, Irwin King
 - *International Conference on Neural Information Processing (Invited Paper), 2020: 21-29.*
13. **Exploring Communities in Large Profiled Graphs (Extended abstract)** [ICDE'19]
 - [Yankai Chen](#), Yixiang Fang, Reynold Cheng, Yun Li, Xiangjun Chen, Jie Zhang
 - *The 35th IEEE International Conference on Data Engineering, 2019, 31(8): 1624-1629.*

Journals

1. **A Survey on Graph Embedding Techniques for Biomedical Data: Methods and Applications** [Information Fusion]
 - Yaozu Wu*, [Yankai Chen](#)*, Zhishuai Yin, Weiping Ding, Irwin King (* indicates equal contribution)
 - *Journal of Information Fusion, 2023.*
2. **Exploring Communities in Large Profiled Graphs** [TKDE'19]
 - [Yankai Chen](#), Yixiang Fang, Reynold Cheng, Yun Li, Xiangjun Chen, Jie Zhang
 - *IEEE Transactions on Knowledge & Data Engineering, 2019, 31(8): 1624-1629.*
3. **Effective and Efficient Attributed Community Search** [VLDBJ'19]
 - Yixiang Fang, Reynold Cheng, [Yankai Chen](#), Siqiang Luo, Jiafeng Hu.
 - *The International Journal on Very Large Data Bases, 2017, 26(6): 803-828.*

PROPOSAL CONTRIBUTIONS

1. **Tencent Rhino-bird Project** 2023
 - [Topic: Mining Highly Influential Nodes Based on Heterogeneous Graph Neural Networks](#)
 - Outcome: Second-round Shortlisted
 - Role: Major contributor
2. **Tencent Wechat Rhino-bird Project** 2023
 - [Topic: Ranking Model Optimization with Quantization Technologies](#)
 - Outcome: Second-round Shortlisted
 - Role: Major contributor
3. **RGC GRF 14222922** 2022
 - [Topic: Exploring the Semantic and Structure Information in Recommender Systems](#)
 - Outcome: granted
 - Role: Major contributor
4. **NSFC/RGC** 2022
 - [Topic: Heterogeneous Graph Federated Learning with Robustness and Security: Theory and Applications](#)
 - Outcome: granted
 - Role: Minor contributor

ACADEMIC SERVICES

Editorial board member:

- International Journal of Neurocomputing

Conference Program Committee Member/Reviewer:

- The Web Conference (WWW) 2024
- SIAM Conference on Data Mining (SDM) 2024
- Learning on Graphs Conference (LOGs) 2024
- AAAI Conference on Artificial Intelligence (AAAI) 2024, 2023
- ACM Recommender Systems (RecSys) 2023
- Conference on Neural Information Processing Systems (NeurIPS) 2023
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2023
- ACM International Conference on Information & Knowledge Management (CIKM) 2023, 2022
- ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR) 2023
- International Joint Conference on Artificial Intelligence (IJCAI) 2023

Journal Reviewer:

- Transactions on Information Systems (TOIS)
- Transactions on Knowledge & Data Engineering (TKDE)
- Transactions on Neural Networks and Learning Systems (TNNLS)
- Transactions on Knowledge Discovery from Data (TKDD)
- Transactions on Multimedia Computing, Communications, and Applications (TOMCCAP)
- Transactions on Intelligent Transportation System (TITS)
- International Journal of Pattern Recognition and Artificial Intelligence (IJPRAI)

TEACHING ASSISTANTS

- CSCI1530: Computer Principles and Java Programming Spring 2023
- CSCI2100: Data Structure Spring 2022
- CSCI1530: Computer Principles and Java Programming Spring 2021
- CSCI1130: Introduction to Computing Using Java Autumn 2020
- SEEM3510: Human-computer Interaction Spring 2020

AWARDS & FELLOWSHIPS

- AACL Volunteer Awards 2022
- SIGKDD Student Travel Award 2022
- CUHK Postgraduate Studentship Award 2019
- NJU Excellent Student Leader Award 2015
- NJU CS Dept. Excellent Student Award 2014
- NJU People Scholarship Award 2014
- NJU Social Work Specialty Award 2013
- NJU Excellent Youth League Cadre Award 2013
- NJU People Scholarship Award 2013