Yankai Chen

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EDUCATION BACKGROUND

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

BIO & RESEARCH INTERESTS

I am a fourth year PhD student in Department of Computer Science and Engineering, The Chinese University of Hong Kong (CUHK), supervised by Professor Irwin King. My research interests are data mining and machine learning for Information Retrieval, Processing, and Generation. My recent topics include but are not limited to:

- Graph data mining and learning problems, *e.g., GNN, 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.*

EXPERIENCE

- **Applied Scientist Intern** - *Amazon* 2022.08 - 2022.12
  – Personalization, 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

1. [**NeurIPS'24**] **Mitigating the Popularity Bias in Graph-based Collaborative Filtering**
   -Yifei Zhang, Hao Zhu, **Yankai Chen**, Zixing Song, Piotr Koniusz, Irwin King
   -*Advances in Neural Information Processing Systems, 2024.*
2. [**SIGKDD'23**] **Contrastive Cross-scale Graph Knowledge Synergy**
   - Yifei Zhang, **Yankai Chen**, Zixing Song, Irwin King
   - *The 29th SIGKDD Conference on Knowledge Discovery and Data Mining, 2023.*
3. [**MLG-SIGKDD'23**] **Topological Representation Learning for E-commerce Shopping Behaviors**
   - **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. [**Information Fusion'23**] **A Survey on Graph Embedding Techniques for Biomedical Data: Methods and Applications**
   - Yaozu Wu*, **Yankai Chen***, Zhishuai Yin, Weiping Ding, Irwin King (* indicates equal contribution)
   -*Journal of Information Fusion, 2023.*
5. [**ICML'23**] **Hierarchical Learning in Hyperbolic Space: Revisit and Beyond**
   - Menglin Yang, Min Zhou, Rex Ying, **Yankai Chen**, Irwin King
   - *The 40th International Conference on Machine Learning, 2023.*

6. **[SIGIR'23] WSFE: Wasserstein Sub-graph Feature Encoder for Effective User Segmentation in Collaborative Filtering**
   - **Yankai Chen**, Yifei Zhang, Menglin Yang, Zixing Song, Chen Ma, Irwin King.
   - *The 46th SIGIR Conference on Research and Development in Information Retrieval, 2023*
7. **[WWW'23] Bipartite Graph Convolutional Hashing for Effective and Efficient Top-N Search in Hamming Space**
   - **Yankai Chen**, Yixiang Fang, Yifei Zhang, Irwin King.
   - *The ACM Web Conference, 2023.*
8. **[SIGKDD'22] Learning Binarized Graph Representations with Multi-faceted Quantization Reinforcement for Top-K Recommendation**
   - **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*
9. **[AACL'22] An Effective Post-training Embedding Binarization Approach for Fast Online Top-K Passage Matching**
   - **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*
10. **[ICDE'22] Attentive Knowledge-aware Graph Convolutional Networks with Collaborative Guidance for Personalized Recommendation**
    - **Yankai Chen**, Yaming Yang, Yujing Wang, Jing Bai, Xiangchen Song, Irwin King.
    - *The 38th IEEE International Conference on Data Engineering, 2022: 299-311*
11. **[WSDM'22] Modeling Scale-free Graphs with Hyperbolic Geometry for Knowledge-aware Recommendation**
    - **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.*
12. **[IJCAI'20] Efficient Community Search over Large Directed Graph: An Augmented Index-based Approach**
    - **Yankai Chen**, Jie Zhang, Yixiang Fang, Xin Cao, Irwin King.
    - *The 29th International Joint Conferences on Artificial Intelligence, 2020: 3544-3550.*
13. **[ICONIP'20] A Literature Review of Recent Graph Embedding Techniques for Biomedical Data**
    - **Yankai Chen**, Yaozu Wu, Shicheng Ma, Irwin King.
    - *International Conference on Neural Information Processing (Invited Paper), 2020: 21-29.*
14. **[ICDE'19] Exploring Communities in Large Profiled Graphs (Extended abstract)**
    - **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.*
15. **[TKDE'19] Exploring Communities in Large Profiled Graphs**
    - **Yankai Chen**, Yixiang Fang, Reynold Cheng, Yun Li, Xiangjun Chen, Jie Zhang.
    - *IEEE Transactions on Knowledge & Data Engineering, 2019, 31(8): 1624-1629.*
16. **[VLDBJ'17] Effective and Efficient Attributed Community Search**
    - 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. **Mining Highly Influential Nodes Based on Heterogeneous Graph Neural Networks (Tencent Rhino-bird Project)**
   - Second-round Shortlisted.
   - Role: Major contributor.
2. **Ranking Model Optimization with Quantization Technologies (Tencent Wechat Rhino-bird Project)**
   - Second-round Shortlisted.
   - Role: Major contributor.

3. **Exploring the Semantic and Structure Information in Recommender Systems (RGC GRF 14222922)**
   - PI: Prof. Irwin King.
   - Role: Major contributor.
4. **Heterogeneous Graph Federated Learning with Robustness and Security: Theory and Applications (NSFC/RGC)**.
   - PI: Prof. Irwin King, Prof. Zenglin Xu.
   - Role: Contributor.

ACADEMIA SERVICES

- **PC members:** SDM24, AAAI24, RecSys23, SIGKDD23, SIGIR23, AAAI23, IJCAI23, CIKM22.
- **External reviewer for journals:** TOIS, TKDE, TNNLS, TKDD, NCA, TOMCCAP, TITS.

TEACHING ASSISTANT

- 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

SELECTED AWARDS & HONORS

- AACL Volunteer Awards — 2022
- SIGKDD Student Travel Award — 2022
- CUHK Postgraduate Studentship — 2019
- NJU Excellent Student Leader Award — 2015
- NJU Excellent Student Award — 2014
- Social Work Specialty Award, NJU — 2013.12
- Excellent Youth League Cadre Award, NJU — 2013.05
- NJU People's Scholarship — 2013, 2014

HOBBIES

Swimming, Skiing, basketball, classical music, Chinese chess & cards