Yankai Chen

✉ yankaichan3@gmail.com | 📱 +86 15950560755 | 🏠 https://yankai-chen.github.io | Last Updated: Dec 2023

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 data mining for **Information Retrieval, Processing, Generation, and Protection**, including:

- Graph data mining and learning problems, e.g., GNNs, self-supervised graph learning.
- Optimization over IR models, e.g., knowledge graph supplementary, quantization.
- Data generation problems, e.g., generative models, watermarking techniques.
- AI4DB problems, e.g., ANN search and optimization for vector database, motif prediction.
- Data market design with deep learning.

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. **Deep Structural Knowledge Exploitation and Synergy for Estimating Node Importance Value on Heterogeneous Information Networks** **[AAAI'24]**
   - **Yankai Chen**, Yixiang Fang, Qiongyan Wang, Xin Cao, Irwin King
   - *The 38th AAAI Conference on Artificial Intelligence, 2024*
2. **Influential Exemplar Replay for Incremental Learning in Recommender Systems** **[AAAI'24]**
   - Xinni Zhang, **Yankai Chen**, Chenhao Ma, Yixiang Fang, Irwin King
   - *The 38th AAAI Conference on Artificial Intelligence, 2024*
3. **HiHPQ: Hierarchical Hyperbolic Product Quantization for Unsupervised Image Retrieval** **[AAAI'24]**
   - Zexuan Qiu, Jiahong Liu, **Yankai Chen**, Irwin King
   - *The 38th AAAI Conference on Artificial Intelligence, 2024*
4. **Mitigating the Popularity Bias of Graph Collaborative Filtering: A Dimensional Collapse Perspective** **[NeurIPS'23]**
   - Yifei Zhang, Hao Zhu, **Yankai Chen**, Zixing Song, Piotr Koniusz, Irwin King
   - *Advances in Neural Information Processing Systems, 2023*
5. **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.*
6. **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*
7. **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*

8. **Bipartite Graph Convolutional Hashing for Effective and Efficient Top-N Search in Hamming Space** [WWW'23]
   - <u>Yankai Chen</u>, Yixiang Fang, Yifei Zhang, Irwin King
   - *The ACM Web Conference, 2023.*

9. **Learning Binarized Graph Representations with Multi-faceted Quantization Reinforcement for Top-K Recommendation** [SIGKDD'22]
   - <u>Yankai Chen</u>, 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.*

10. **Attentive Knowledge-aware Graph Convolutional Networks with Collaborative Guidance for Personalized Recommendation** [ICDE'22]
    - <u>Yankai Chen</u>, Yaming Yang, Yujing Wang, Jing Bai, Xiangchen Song, Irwin King
    - *The 38th IEEE International Conference on Data Engineering, 2022: 299-311*

11. **Modeling Scale-free Graphs with Hyperbolic Geometry for Knowledge-aware Recommendation** [WSDM'22]
    - <u>Yankai Chen</u>, 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. **An Effective Post-training Embedding Binarization Approach for Fast Online Top-K Passage Matching** [AACL'22]
    - <u>Yankai Chen</u>, 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.*

13. **Efficient Community Search over Large Directed Graph: An Augmented Index-based Approach** [IJCAI'20]
    - <u>Yankai Chen</u>, Jie Zhang, Yixiang Fang, Xin Cao, Irwin King
    - *The 29th International Joint Conferences on Artificial Intelligence, 2020: 3544-3550.*

14. **A Literature Review of Recent Graph Embedding Techniques for Biomedical Data** [ICONIP'20]
    - <u>Yankai Chen</u>, Yaozu Wu, Shicheng Ma, Irwin King
    - *International Conference on Neural Information Processing, 2020: 21-29.*

15. Exploring Communities in Large Profiled Graphs (Extended abstract) [ICDE'19]
    - <u>Yankai Chen</u>, 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. **Exploring Communities in Large Profiled Graphs** [TKDE]
   - <u>Yankai Chen</u>, Yixiang Fang, Reynold Cheng, Yun Li, Xiangjun Chen, Jie Zhang
   - *IEEE Transactions on Knowledge & Data Engineering, 2019, 31(8): 1624-1629.*

2. A Survey on Graph Embedding Techniques for Biomedical Data: Methods and Applications [Information Fusion]
   - Yaozu Wu*, <u>Yankai Chen</u>*, Zhishuai Yin, Weiping Ding, Irwin King (* indicates equal contribution)
   - *Journal of Information Fusion, 2023.*

3. **Effective and Efficient Attributed Community Search** [VLDBJ]
   - Yixiang Fang, Reynold Cheng, <u>Yankai Chen</u>, Siqiang Luo, Jiafeng Hu.
   - *The International Journal on Very Large Data Bases,2017, 26(6): 803-828.*

Workshops

1. **Topological Representation Learning for E-commerce Shopping Behaviors** [MLG@SIGKDD'23]
   - <u>Yankai Chen</u>, 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.*

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

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 SIGIR Conference on Research and Development in Information Retrieval (SIGIR)	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
• International Joint Conference on Artificial Intelligence (IJCAI)	2024, 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