

# Jian Kang

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3011 Wegmans Hall, University of Rochester, Rochester, NY 61801

## RESEARCH INTERESTS

Data mining and machine learning, especially with graphs or relational data, that are trustworthy and can advance scientific discovery

## EMPLOYMENT

- **University of Rochester** Rochester, NY  
Assistant Professor Aug. 2023 – Present  
Department of Computer Science  
Goergen Institute of Data Science (Affiliated Faculty)

## EDUCATION

- **University of Illinois Urbana-Champaign** Urbana, IL  
Ph.D. in Computer Science Aug. 2019 – Jul. 2023  
Dissertation: “Algorithmic Foundation of Fair Graph Mining”  
Advisor: Dr. Hanghang Tong
- **Arizona State University** Tempe, AZ  
Ph.D. Student in Computer Science Aug. 2017 – May 2019  
Advisor: Dr. Hanghang Tong
- **University of Virginia** Charlottesville, VA  
M.CS. in Computer Science Aug. 2015 – Dec. 2016
- **Beijing University of Posts and Telecommunications** Beijing, China  
B.Eng. in Telecommunications Engineering Sep. 2010 – Jun. 2014

## AWARDS AND HONORS

- Top Reviewers, LOG 2022 2022
- Top Reviewers, NeurIPS 2022 2022
- Rising Stars in Data Science, University of Chicago 2022
- Mavis Future Faculty Fellow, University of Illinois Urbana-Champaign 2022
- Best Reviewers Award, CIKM 2021 2021
- University Nomination (Top 3), 2022 Apple Scholars in AI/ML 2021
- Outstanding Reviewer, ICLR 2021 2021
- Top Reviewer, ICML 2020 2020
- Student Travel Award, KDD 2020 2020
- Student Travel Award, CIKM 2019 2019
- Student Travel Award, BigData 2018 2018

## PUBLICATIONS

### Preprints

- Hyunsik Yoo, Zhichen Zeng, **Jian Kang**, Zhining Liu, David Zhou, Fei Wang, Eunice Chan, Hanghang Tong. *Ensuring User-side Fairness in Dynamic Recommender Systems*. arXiv:2308.15651.
- Xiao Lin, **Jian Kang**, Weilin Cong, Hanghang Tong. *BeMap: Balanced Message Passing for Fair Graph Neural Network*. arXiv:2306.04107.
- Zhining Liu, **Jian Kang**, Hanghang Tong, Yi Chang. *IMBENS: Ensemble Class-imbalanced Learning in Python*. arXiv:2111.12776.

### Journal Papers

- Tiankai Xie, Yuxin Ma, **Jian Kang**, Hanghang Tong, Ross Maciejewski. *FairRankVis: A Visual Analytics Framework for Exploring Algorithmic Fairness in Graph Mining Models*. IEEE Transactions on Visualization and Computer Graphics (TVCG), 2021.
- Meijia Wang, **Jian Kang**, Nan Cao, Yinglong Xia, Wei Fan, Hanghang Tong. *Graph Ranking Auditing: Problem Definition and Fast Solutions*. IEEE Transactions on Knowledge and Data Engineering (TKDE), 2020.

### Conference Papers

- Weilin Cong, Si Zhang, **Jian Kang**, Baichuan Yuan, Hao Wu, Xin Zhou, Hanghang Tong, Mehrdad Mahdavi. *Do We Really Need Complicated Model Architectures For Temporal Networks?* In Proceedings of the 11th International Conference on Learning Representations (ICLR), 2023.
- **Jian Kang**, Tiankai Xie, Xintao Wu, Ross Maciejewski, Hanghang Tong. *InfoFair: Information-Theoretic Intersectional Fairness*. In 2022 IEEE International Conference on Big Data (Big Data), 2022.
- Yian Wang, **Jian Kang**, Yinglong Xia, Jiebo Luo, Hanghang Tong. *iFiG: Individually Fair Multi-view Graph Clustering*. In 2022 IEEE International Conference on Big Data (Big Data), 2022.
- **Jian Kang**<sup>\*</sup>, Qinghai Zhou<sup>\*</sup>, Hanghang Tong. *JuryGCN: Quantifying Jackknife Uncertainty on Graph Convolutional Networks*. In Proceedings of the 28th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2022.
- **Jian Kang**, Yan Zhu, Yinglong Xia, Jiebo Luo, Hanghang Tong. *RawlsGCN: Towards Rawlsian Difference Principle on Graph Convolutional Network*. In Proceedings of the ACM Web Conference (WWW), 2022.
- Yushun Dong, **Jian Kang**, Hanghang Tong, Jundong Li. *Individual Fairness for Graph Neural Networks: A Ranking based Approach*. In Proceedings of the 27th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2021.
- **Jian Kang**, Jingrui He, Ross Maciejewski, Hanghang Tong. *InFoRM: Individual Fairness on Graph Mining*. In Proceedings of the 26th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2020.
- **Jian Kang**, Hanghang Tong. *N2N: Network Derivative Mining*. In Proceedings of the 28th ACM International Conference on Information and Knowledge Management (CIKM), 2019.
- **Jian Kang**, Meijia Wang, Nan Cao, Yinglong Xia, Wei Fan, Hanghang Tong. *AURORA: Auditing PageRank on Large Graphs*. In 2018 IEEE International Conference on Big Data (Big Data), 2018.
- **Jian Kang**<sup>\*</sup>, Scott Freitas<sup>\*</sup>, Haichao Yu, Yinglong Xia, Nan Cao, Hanghang Tong. *X-Rank: Explainable Ranking in Complex Multi-Layered Networks*. In Proceedings of the 27th ACM International Conference on Information and Knowledge Management (CIKM), 2018.
- Haichao Yu, **Jian Kang**, Yinglong Xia, Nan Cao, Hanghang Tong. *Visual Mining of Multi-Sourced*

*Networks*. In Proceedings of the 5th China Visualization and Visual Analytics Conference (ChinaVis), 2018.

(\* indicates equal contribution)

## TALKS

- **Algorithmic Foundation of Fair Graph Mining**

*Keynote talk*: The 1st ACM SIGKDD Workshop on Ethical Artificial Intelligence: Methods and Applications (EAI-KDD'22) Aug. 2022

*Invited talk*: Computer Science Seminar, University of Rochester Sep. 2023

*Invited talk*: Roblox Apr. 2023

*Invited talk*: Management Science, University of Waterloo Mar. 2023

*Invited talk*: Computer Science, University of Rochester Mar. 2023

*Invited talk*: Machine Learning Seminar, University of Illinois Urbana-Champaign Mar. 2023

*Invited talk*: Computer Science, Emory University Feb. 2023

*Invited talk*: Computer Science and Systems, University of Washington-Tacoma Feb. 2023

*Invited talk*: Computer Science and Engineering, University of California, Merced Feb. 2023

*Invited talk*: UCLA Data Mining Lab, University of California, Los Angeles Dec. 2022

*Invited talk*: Emory Graph Mining Lab, Emory University Dec. 2022

*Invited talk*: The Sanghani Center for AI and Data Analytics, Virginia Tech Nov. 2022

*Invited talk*: The DEFIRST Reading Group, Mila Nov. 2022

- **Fair Graph Mining**

*Invited talk*: Alibaba Nov. 2021

## GRANT EXPERIENCE

- Helped a successful NSF proposal on ‘Collaborative Research: Towards a Theoretic Foundation for Optimal Deep Graph Learning’.
- Helped a successful NSF proposal on ‘FAI: Towards a Computational Foundation for Fair Network Learning’.

## TEACHING EXPERIENCE

### Course Instructor

- **University of Rochester**

CSC 446: Machine Learning Jan. 2024 - May 2024

CSC 442: Artificial Intelligence Aug. 2023 – Dec. 2023

### Teaching Assistant

- **University of Illinois Urbana-Champaign**

CS 412: Introduction to Data Mining Jan. 2022 – May 2022

CS 412: Introduction to Data Mining Aug. 2020 – Dec. 2020

- **Arizona State University**

CSE 575: Statistical Machine Learning Aug. 2018 – Dec. 2018

### Guest Lecturer

- **Vanderbilt University**

Fair Graph Mining, CS4352/5352: Social Network Analysis Nov. 2023

- **University of Rochester**

Fair Graph Mining, CSC 440: Data Mining Nov. 2023

Fair Graph Mining, CSC 245/445: Deep Learning Nov. 2023

- **Virginia Tech**  
Fair Graph Mining, CS 5824: Advanced Machine Learning Apr. 2022
  - **The Pennsylvania State University**  
Algorithmic Fairness in Machine Learning, DS 402: Data Science in Healthcare Apr. 2021
- Conference Tutorial Instructor**
- **Algorithmic Fairness on Graphs: State-of-the-art and Open Challenges** Apr. 2023  
The 2023 SIAM International Conference on Data Mining
  - **Algorithmic Fairness on Graphs: Methods and Trends** Aug. 2022  
The 28th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining
  - **Fair Graph Mining** Nov. 2021  
The 30th ACM International Conference on Information and Knowledge Management

## MENTORING EXPERIENCE

- Ms. Tianyu Wang (M.S. Student, NJU): Conformal prediction
- Mr. Tuo Wang (Ph.D. Student, VT): Uncertainty quantification for dynamic graphs
- Mr. Weijie Guan (Ph.D. Student, VT): Novelty detection
- Mr. Xiangqi Wang (B.Eng., USTC): Online influence maximization
- Ms. Tianyi Zhao (B.Eng., TJU): Conformal prediction on graphs
- Mr. Hyunsik Yoo (Ph.D. Student, UIUC): Group fairness in online recommender systems
- Mr. Jiaju Chen (B.Eng., USTC): Graph contrastive learning
- Mr. Xianghe Xu (B.S., UIUC): Graph contrastive learning
- Mr. Xiao Lin (B.Eng., PKU): Group fairness in graph neural networks
- Ms. Yian Wang (M.S., UIUC): Individual fairness in multi-view graph mining (publication at IEEE Big Data 2022), group fairness on graphs under covariate shift
- Ms. Xinyu He (B.Eng., THU): Negative sampling in graph contrastive learning, sensitivity analysis of individual fairness on graphs
- Mr. Junke Ye (B.S., MSU): Group fairness in heterogeneous graph clustering
- Mr. Yuxin Xiao (B.S., UIUC): Auditing graph attention networks
- Ms. Meijia Wang (M.S., ASU): Auditing graph ranking algorithms (publication at IEEE Big Data 2018 and IEEE TKDE)

## INDUSTRY EXPERIENCE

- **Meta AI** Menlo Park, CA  
Research Intern May 2022 – Aug. 2022  
Mentor: Dr. Yan Zhu
- **Facebook AI** Remote  
Research Intern May 2021 – Aug. 2021  
Mentor: Dr. Yan Zhu

## PROFESSIONAL ACTIVITIES AND SERVICES

### Chair/Editor

- *Workshop Co-chair* at the 1st Workshop on Trustworthy Learning on Graphs (TrustLOG-CIKM 2022)

## Senior Program Committee/Area Chair

- *Senior Program Committee* at the 38th AAAI Conference on Artificial Intelligence (AAAI 2024)
- *Area Chair* at the NeurIPS 2023 Workshop on New Frontiers in Graph Learning (GLFrontiers 2023)
- *Senior Program Committee* at the 37th AAAI Conference on Artificial Intelligence (AAAI 2023)

## Program Committee/Reviewer

- *Program Committee* at the 2024 ACM Web Conference (WWW 2024, Graph Algorithms and Learning for the Web Track)
- *Reviewer* at the 12th International Conference on Learning Representations (ICLR 2024)
- *Program Committee* at the 33rd International Joint Conference on Artificial Intelligence (IJCAI 2024)
- *Program Committee* at the 2024 SIAM International Conference on Data Mining (SDM 2024)
- *Program Committee* at the 17th ACM International Conference Web Search and Data Mining (WSDM 2024)
- *Reviewer* at the 2023 Learning on Graph Conference (LoG 2023)
- *Reviewer* at the 37th Conference on Neural Information Processing Systems (NeurIPS 2023)
- *Program Committee* at 2023 IEEE International Conference on Big Data (IEEE Big Data 2023)
- *Program Committee* at the 32nd ACM International Conference on Information and Knowledge Management (CIKM 2023)
- *Program Committee* at the 2023 European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD 2023, Research Track)
- *Program Committee* at the 3rd Workshop of the Graph Learning Benchmarks (GLB 2023)
- *Program Committee* at the 29th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2023, Research Track and Applied Data Science Track)
- *Reviewer* at the 40th International Conference on Machine Learning (ICML 2023)
- *Program Committee* at the 32nd International Joint Conference on Artificial Intelligence (IJCAI 2023)
- *Reviewer* at the 11th International Conference on Learning Representations (ICLR 2023)
- *Program Committee* at the 2023 ACM Web Conference (WWW 2023, Social Network Analysis and Graph Algorithms Track)
- *Program Committee* at the 2023 SIAM International Conference on Data Mining (SDM 2023)
- *Program Committee* at the 16th ACM International Conference on Web Search and Data Mining (WSDM 2023)
- *Reviewer* at the 2022 Learning on Graphs Conference (LoG 2022)
- *Reviewer* at the 36th Conference on Neural Information Processing Systems (NeurIPS 2022)
- *Program Committee* at the 31st ACM International Conference on Information and Knowledge Management (CIKM 2022)
- *Program Committee* at the 28th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2022, Applied Data Science Track)
- *Reviewer* at the 39th International Conference on Machine Learning (ICML 2022)
- *Program Committee* at the 31st International Joint Conference on Artificial Intelligence (IJCAI 2022)
- *Reviewer* at the 10th International Conference on Learning Representations (ICLR 2022)
- *Program Committee* at the 15th ACM International Conference on Web Search and Data Mining

(WSDM 2022)

- *Reviewer* at the 35th Conference on Neural Information Processing Systems (NeurIPS 2021)
- *Program Committee* at the 30th ACM International Conference on Information and Knowledge Management (CIKM 2021)
- *Program Committee* at the 30th International Joint Conference on Artificial Intelligence (IJCAI 2021)
- *Reviewer* at the 38th International Conference on Machine Learning (ICML 2021)
- *Reviewer* at the 9th International Conference on Learning Representations (ICLR 2021)
- *Program Committee* at the 35th AAAI Conference on Artificial Intelligence (AAAI 2021)
- *Program Committee* at the 5th International workshop on Deep Learning on Graphs: Methods and Applications (DLG-AAAI 2021)
- *Reviewer* at the 37th International Conference on Machine Learning (ICML 2020)

### **Journal Reviewer**

- *Reviewer* of IEEE Transactions on Neural Networks and Learning Systems (TNNLS), 2023
- *Reviewer* of IEEE Transactions on Big Data (TBD), 2023
- *Reviewer* of ACM Transactions on Intelligent Systems and Technology (TIST), 2023
- *Reviewer* of ACM Transactions on Knowledge Discovery from Data (TKDD), 2023
- *Reviewer* of IEEE Transactions on Knowledge and Data Engineering (TKDE), 2023
- *Reviewer* of ACM Computing Surveys (CSUR) 2022
- *Reviewer* of IEEE Transactions on Knowledge and Data Engineering (TKDE), 2022
- *Reviewer* of Journal of Machine Learning Research (JMLR), 2021
- *Reviewer* of IEEE Transactions on Big Data (TBD), 2021
- *Reviewer* of IEEE Transactions on Knowledge and Data Engineering (TKDE), 2021
- *Reviewer* of The Computer Journal (COMPJ), 2021
- *Reviewer* of IEEE Transactions on Knowledge and Data Engineering (TKDE), 2020
- *Reviewer* of IEEE Transactions on Knowledge and Data Engineering (TKDE), 2019

### **External Reviewer**

- *Subreviewer* at the 42nd IEEE International Conference on Distributed Computing Systems (ICDCS 2022)
- *External Reviewer* at the 37th Conference on Uncertainty in Artificial Intelligence (UAI 2021)
- *Subreviewer* at the 44th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2021)
- *Subreviewer* at the Web Conference 2021 (WWW 2021, Social Network Analysis and Graph Algorithms Track)
- *External Reviewer* at the 34th Conference on Neural Information Processing Systems (NeurIPS 2020)
- *Subreviewer* at the Web Conference 2020 (WWW 2020, Web Mining and Content Analysis Track)
- *Subreviewer* at the 13th ACM International Conference on Web Search and Data Mining (WSDM 2020)
- *External Reviewer* of Communications of the ACM (CACM), 2019
- *External Reviewer* at the 28th International Joint Conference on Artificial Intelligence (IJCAI) 2019

- *External Reviewer* at the 25th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2019
- *External Reviewer* at the 36th International Conference on Machine Learning (ICML) 2019
- *External Reviewer* at the 24th International Conference on Database Systems for Advanced Applications (DASFAA 2019)
- *External Reviewer* at the 23rd Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2019
- *External Reviewer* at the 12th ACM International Conference on Web Search and Data Mining (WSDM) 2019
- *External Reviewer* at the 33rd AAAI Conference on Artificial Intelligence (AAAI) 2019
- *External Reviewer* of ACM Transactions on Knowledge Discovery from Data (TKDD), 2018
- *Subreviewer* at the 27th ACM International Conference on Information and Knowledge Management (CIKM 2018, Demo Track)
- *External Reviewer* at the 26th ACM International Conference on Multimedia (MM 2018)
- *External Reviewer* at the 5th IEEE International Conference on Data Science and Advanced Analytics (DSAA 2018)
- *Subreviewer* at the 24th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2018, Research Track)
- *Subreviewer* at the 23rd International Conference on Database Systems for Advanced Applications (DASFAA 2018)
- *Subreviewer* at the Web Conference 2018 (WWW 2018, Posters Track)

#### **Other Activities and Services**

- *Student Volunteer* at the 26th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2021)
- *Student Volunteer* at the 25th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2020)
- *Student Volunteer* at the 2018 IEEE International Conference on Big Data (IEEE BigData 2018)

#### **REFERENCES**

Upon request.