Jian Kang

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201 N. Goodwin Ave, Urbana, IL 61801

RESEARCH INTERESTS

Data mining and machine learning, especially on graphs with special focus on the trustworthiness and the ability to advance scientific discovery

EMPLOYMENT

- **University of Rochester** — Rochester, NY
  Assistant Professor, Department of Computer Science — Starting from Aug. 2023

EDUCATION

- **University of Illinois at Urbana-Champaign** — Urbana, IL
  Ph.D. candidate in Computer Science — Aug. 2019 – Jul. 2023 (Expected)
  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
  Master of Computer Science — Aug. 2015 – Dec. 2016

- **Beijing University of Posts and Telecommunications** — Beijing, China
  Bachelor of 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 at 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

Preprint

- Xiao Lin, **Jian Kang**, Weilin Cong, Hanghang Tong. *BeMap: Balanced Message Passing for Fair Graph Neural Network.* arXiv.

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***, Qinghai Zhou*, 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***, Scott Freitas*, 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*: Roblox   Apr. 2023

– *Invited talk*: Management Science, University of Waterloo	Mar. 2023
– *Invited talk*: Computer Science, University of Rochester	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*: Sanghani Center for AI and 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

Teaching Assistant

- CS412: Introduction to Data Mining, UIUC	Jan. 2022 – May 2022
- CS412: Introduction to Data Mining, UIUC	Aug. 2020 – Dec. 2020
- CS575: Statistical Machine Learning, ASU	Aug. 2018 – Dec. 2018

Guest Lecturer

- Fair Graph Mining, CS 5824: Advanced Machine Learning, VT	Apr. 2022
- Algorithmic Fairness in Machine Learning, DS 402: Data Science in Healthcare, PSU	Apr. 2021

Conference Tutorial Instructor

- Algorithmic Fairness on Graphs: State-of-the-art and Open Challenges, SDM 2023	Apr. 2023
- Algorithmic Fairness on Graphs: Methods and Trends, KDD 2022	Aug. 2022
- Fair Graph Mining, CIKM 2021	Nov. 2021

MENTORING EXPERIENCE

- Mr. Xiangqi Wang (B.Eng., USTC): Online influence maximization
- Ms. Tianyi Zhao (B.Eng., TJU): Conformal prediction on graphs
- Mr. Hyunsik Yoo (Ph.D., 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 uncertainty

- 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)

- *Senior Program Committee* at the 37th AAAI Conference on Artificial Intelligence (AAAI 2023)

Program Committee/Reviewer

- *Program Committee* at the 33rd International Joint Conference on Artificial Intelligence (IJCAI 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 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

- Dr. Hanghang Tong

  Associate Professor, Department of Computer Science, University of Illinois at Urbana-Champaign
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  – Phone: 217-244-0884
  – Email: htong@illinois.edu
  – Homepage: http://tonghanghang.org/

- Dr. Ross Maciejewski

  Professor, School of Computing and Augmented Intelligence, Arizona State University
  – Address: BYENG 344, Tempe, AZ 85287, USA
  – Phone: 480-965-2785
  – Email: rmacieje@asu.edu
  – Homepage: http://rmaciejewski.faculty.asu.edu/

- Dr. Jiebo Luo

  Albert Arendt Hopeman Professor of Engineering, Department of Computer Science, University of Rochester
  – Address: 3101 Wegmans Hall, University of Rochester, Rochester, NY 14627, USA
  – Phone: 585-276-5784
  – Email: jluo@cs.rochester.edu
  – Homepage: https://www.cs.rochester.edu/u/jluo/

- Dr. Jiawei Han

  Michael Aiken Chair Professor, Department of Computer Science, University of Illinois at Urbana-Champaign
  – Address: 201 N Goodwin Ave, Urbana, IL 61801, USA
  – Phone: 217-333-6903
  – Email: hanj@illinois.edu
  – Homepage: http://hanj.cs.illinois.edu/