

KE YANG

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CURRENT AFFILIATIONS

Assistant Professor

Department of Computer Science,
College of Sciences,
The University of Texas at San Antonio

Aug, 2023 - current

Founding Faculty

Cohort for AI REsponsibility (CAREAI),
The University of Texas at San Antonio

Sep, 2023 - current

Core Faculty

School of Data Science,
The University of Texas at San Antonio

Sep, 2023 - current

Faculty Member

AI Consortium for Human Well-being (MATRIX),
The University of Texas at San Antonio

Oct, 2023 - current

PAST ACADEMIC APPOINTMENTS

Postdoctoral Research Associate

Manning College of Information & Computer Sciences,
University of Massachusetts Amherst

Sep, 2021 - Aug, 2023

Postdoctoral Fellow

Center for Data Science,
University of Massachusetts Amherst

Sep, 2021 - Aug, 2023

Visiting Scholar

Tandon School of Engineering,
New York University

2021 - 2022

RESEARCH INTEREST

My work is broadly in the areas of *AI responsibility*, *data management*, *machine learning*, and *human-centered data science*. In particular, I have focused on topics such as *algorithmic fairness*, *diversity*, *transparency*, and *algorithmic accountability*. Other areas of focus include *AI and machine learning education* and public engagement.

EDUCATION

- Ph.D. in Computer Science*, New York University 2019 - 2021
- Advisor: Julia Stoyanovich, GPA 3.9/4.0
 - Thesis: [Fairness, diversity, and interpretability in ranking](#)
 - Committee: Julia Stoyanovich (chair), Daniel Neill, Oded Nov, and Sebastian Schelter
- Ph.D. candidate in Computer Science*, [Drexel University](#) (transferred) 2015 - 2018
- Advisor: Julia Stoyanovich, GPA 3.98/4.0
- M.S. in Computer Science*, [Beijing Technology and Business University](#), 2012 - 2015
- Advisors: Qian Mo and Zhongming Han, GPA 3.51/4.0
 - Thesis: Detecting web spammers in online shopping websites
 - Graduated *summa cum laude*
- B.Eng. in Software Engineering*, [Beijing Technology and Business University](#) 2008 - 2012
- Advisor: Qian Mo, GPA 3.45/4.0
 - Graduated *summa cum laude*
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PAST PROFESSIONAL EXPERIENCE

Postdoctoral Research Associate

- Manning College of Information & Computer Sciences*,
University of Massachusetts Amherst, MA, U.S.A. 2021 - 2023
- Supervisor and co-PI: [Alexandra Meliou](#)
 - Fully funded by CDS Postdoctoral Fellowship
 - Selected publication: [Non-Invasive Fairness in Learning through the Lens of Data Drift](#), 2023

Graduate Research Assistant

- VIDA Research Center*, New York University, NY, U.S.A. 2019 - 2021

- Supervisor: [Julia Stoyanovich](#)
- Fully funded by a graduate research assistantship
- Selected publication: [Fairness in Ranking: A Survey, 2021](#) (received 145 citations until Aug, 2023)
- More of my past projects on dataresponsibly.github.io I built for the lab during graduate school.

Research Intern

AT&T Labs, New York City, NY, U.S.A.

2019

- Supervisors: [Emily Dodwell](#), [Ritwik Mitra](#), and [Balachander Krishnamurthy](#)
- Project: Fairness and transparency in machine learning

Graduate Research Assistant

College of Computing & Informatics, Drexel University, PA, U.S.A.

2015 - 2018

- Supervisor: [Julia Stoyanovich](#)
- Fully funded by a graduate research assistantship
- Selected publication:
 - > [Measuring Fairness in Ranked Outputs, 2017](#) (received 341 citations until Aug, 2023)
 - > [A Nutritional Label for Rankings, 2018](#) (received 113 citations until Aug, 2023)

Research engineer

Elite & Resource (start-up company), Beijing, China

2014 - 2015

- Supervisor: [Peng Sun](#)
- Project: Preventing flood disasters using machine learning
- Results have been integrated as a core component of a national data management system for floor disasters

Graduate Research Assistant

Beijing Technology and Business University, Beijing, China

2012 - 2015

- Supervisors: [Zhongming Han](#) and [Qian Mo](#)
- Fully funded by a graduate research assistantship
- Selected publication:
 - > [Overview of Web Spammer Detection, 2013](#) (published in a top-tier computer science journal in Chinese)
 - > [Analyzing Spectrum Features of Weight User Relation Graph to Identify Large Spammer Groups in Online Shopping Websites, 2015](#) (published in a top-tier computer science journal in Chinese)

PUBLICATIONS

Peer-reviewed Conference Publications

1. **Ke Yang** and Alexandra Meliou. Non-Invasive Fairness in Learning through the Lens of Data Drift. IEEE International Conference on Data Engineering (**ICDE 2024**), Utrecht, Netherlands.
2. **Ke Yang**. DEEILS: Data Ethics Embedded Interactive Learning System for Computer Science Students. The Technical Symposium on Computer Science Education (**SIGCSE TS 2024**), Port-

land, Oregon, United States, presenting as a lighting talk for junior faculty.

3. **Ke Yang**, Joshua R. Loftus, and Julia Stoyanovich. Causal Intersectionality and Fair Ranking. Symposium on Foundations of Responsible Computing, (**FORC 2021**), Virtual Conference.
4. Meike Zehlike, **Ke Yang**, and Julia Stoyanovich. Mapping Normative Frameworks to Fair Ranking. ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (**EAAMO 2021**), presented as a poster.
5. **Ke Yang**, Vasilis Gkatzelis, and Julia Stoyanovich. Balanced Ranking with Diversity Constraints. International Joint Conference on Artificial Intelligence (**IJCAI 2019**), Macao, China.
6. **Ke Yang**, Julia Stoyanovich, Abolfazl Asudeh, Bill Howe, H.V. Jagadish, and Gerome Miklau. A Nutritional Label for Rankings. ACM International Conference on Management of Data (**SIGMOD 2018 Demonstration**), Houston, USA.
7. Julia Stoyanovich, **Ke Yang**, H.V. Jagadish. Online Set Selection with Fairness and Diversity Constraints. International Conference on Extending Database Technology (**EDBT 2018**), Vienna, Austria.
8. **Ke Yang** and Julia Stoyanovich. Measuring Fairness in Ranked Outputs. International Conference on Scientific and Statistical Database Management (**SSDBM 2017**), Chicago, USA.

Peer-reviewed Journal Publications

7. Zehlike Meike, **Ke Yang**, and Julia Stoyanovich. Fairness in Ranking, Part I: Score-based Ranking. ACM Computing Surveys (**CSUR 2022**).
8. Zehlike Meike, **Ke Yang**, and Julia Stoyanovich. Fairness in Ranking, Part II: Learning-to-Rank and Recommender Systems. ACM Computing Surveys (**CSUR 2022**).
9. Zhongming Han, **Ke Yang**, and Xusheng Tan. Analyzing Spectrum Features of Weight User Relation Graph to Identify Large Spammer Groups in Online Shopping Websites. **Chinese Journal of Computers**, 40(4): 939-954 (2017) (in Chinese).
10. Zhongming Han, **Ke Yang**, Fengmin Xu, and Dagao Duan. Probabilistic Graphical Model for Detecting Spammers in Microblog Websites. **Journal of Embedded Systems**, 8(1): 12-23 (2016).
11. Qian Mo and **Ke Yang**. Overview of Web Spammer Detection. **Chinese Journal of Software**, 25(7): 1505-1526 (2014) (in Chinese).

Peer-reviewed Workshops

12. **Ke Yang**, Biao Huang, Julia Stoyanovich, and Sebastian Schelter. Fairness-Aware Instrumentation of Preprocessing Pipelines for Machine Learning. Workshop on Human-In-the-Loop Data Analytics in conjunction with the 2020 ACM SIGMOD/PODS Conference, (**HILDA@SIGMOD 2020**), Portland, OR, USA.

Patent

13. Kai Wang and **Ke Yang**. Network water army group identifying method and system. China Invention Patent, (2015) (in Chinese), No. 104573017.

Under review

- * **Ke Yang**, Alexandra Burushkina, and Peter Tran. ProFair: Using Data Profiling to Support Fair Learning, 2023.
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GRANTS, FELLOWSHIPS, AWARDS, & HONORS

- Reducing Hallucination of LLMs for Causality-integrated Personal Medical History Question Answering, Collaborative Seed Funding Grant (\$35,000), School of Data Science (SDS) and the Open Cloud Institute (OCI)@UTSA, 2024
 - Sponsored participant for [NSF Secure and Trustworthy Cyberspace program \(SaTC\) Aspiring PI Workshop](#), Chicago, May 2024
 - Sponsored faculty for [NCFDD Faculty Success Program summer 2024](#), UTSA Research
 - Postdoctoral Fellowship, *Center for Data Science*, University of Massachusetts Amherst, 2021
 - Pearl Brownstein Doctoral Research Award, *Tandon School of Engineering*, New York University, 2021
 - Invited researcher, [Fairness in Machine Learning workshop at Google](#), 2018
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TEACHING

Instructor at the University of Texas at San Antonio

- CS 7123 *Research Methods*, Spring 2024
- CS 5443 *Database Management Systems*, Fall 2023, 2024

Assisting Instructor at University of Massachusetts Amherst

- CMPSCI 345 *Practice and Applications of Data Management*, Fall 2022

Teaching Assistant at Drexel University

- CS 500 *Fundamentals of Databases*, Winter 2017
 - CS 461 *Database Systems*, Spring 2017
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STUDENTS' MENTORING

Current

- Sinmi Akindele, Ph.D. student, University of Texas at San Antonio, College of Sciences, joined in Fall 2023
- Sohanur Rahman, Ph.D. student, University of Texas at San Antonio, College of Sciences, joined in Fall 2023
- Asif Ahmed, Ph.D. student, University of Texas at San Antonio, College of Sciences, joined in Fall 2023
- Zafeiria Moumoulidou, Ph.D. student, University of Massachusetts Amherst, Manning College of Information & Computer Sciences, joined in Fall 2018, co-advised with Prof. Alexandra Meliou
- Jason Johnson, Master's student, University of Texas at San Antonio, College of Sciences, joined in Spring 2024

Past

- Alexandra Burushkina, Master's student, University of Massachusetts Amherst, Center for Data Science, [Data Science for Social Good Summer Program](#), graduated June 2023, current position: doctoral student in Computer Science at University of Massachusetts Amherst
 - Peter Tran, Master's student, University of Massachusetts Amherst, Center for Data Science, [Data Science for Social Good Summer Program](#), current position: doctoral student in Psychometrics at University of Massachusetts Amherst
 - Samasth Norway Ananda, Master's student, New York University, graduated June 2021, current position: software developer at Oracle
 - Biao Huang, Master's student, New York University, graduated June 2020, current position: software developer in China lead tech company
 - Jensine Raihan, Undergraduate Student, New York University
 - Pragath Siva, High school Student, Sharon High School, graduated June 2023, current position: freshman in Computer Science and Economics at the University of Illinois Urbana-Champaign
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INVITED TALKS

- Data-driven Solutions for AI Responsibility, [Virtual Seminar, DATA Lab @ Northeastern University](#), 2024 Spring
- AI and the Changing Nature of Work, Panel Speaker, [South Texas Human Resources Symposium \(STXHRS\) 2024](#)
- Causal Intersectionality and Fair Ranking, [Integrated Symposium on Algorithmic and Testing Fairness in Education: Methods and Applications](#), SREE 2023 Conference Embedding Equity for Better Methods, Evidence, and Practice, September 2023

- Mitigating Bias in Data-driven Tasks, [UTSA MATRIX](#), Fall Seminar Series, September 2023
 - Responsible Data Science, Brown University, virtual, March 2023
 - Reducing the Impact of Bias on Data-driven Tasks, Ohio State University, February 2023
 - Data Science for Social Good, Panel Speaker, Central Massachusetts Women in Data Science (WiDS), Worcester Polytechnic Institute (WPI), March 2022
 - Data Bias and their Impact on Machine Learning, [MIT Horizon](#) event, November 2022
 - Fairness and Diversity in Rankings, AT&T Lab Research Weekly Symposium, June 2019
 - Fairness In Ranking Systems, AT&T Lab Graduate Student Symposium, November 2018
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ACADEMIC SERVICE

Conference Organization

- Session co-chair: Responsibility and Privacy at Extending Database Technology (EDBT) 2022
- Technical chair: 4th Workshop on Data Management for End-to-End Machine Learning (DEEM) at SIGMOD 2020

Program Committee Member

- Guided AI Workshop @ ACM Conference on Management of Data (SIGMOD) 2024
- Ethics reviewer, NeurIPS 2024, 2023, 2022, 2021
- ACM Conference on Management of Data (SIGMOD) 2023
- International Conference on Extending Database Technology (EDBT) Industry Program 2023, 2022
- ACM Web Conference (a.k.a. International World Wide Web Conference, abbreviated as WWW) 2024 Industry, 2023 Industry, Workshops, Tutorials, Posters, and Demos, 2022 Industry
- IEEE Conference on Data Engineering (ICDE) Demo Track, 2023, 2022
- ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT) 2021
- ACM Workshop on Responsible Recommendation (FAccTRec) at RecSys 2024, 2023, 2022, 2021
- ACM Workshop on Data Management for End-to-End Machine Learning (DEEM) at SIGMOD 2021, 2020

Ad-hoc Reviewer

- ACM Transactions on Social Computing 2023
- ACM Conference on Human Factors in Computing Systems (CHI) 2021

Other Activities

- Social Science Panelist for American Association of University Women (AAUW) 2024-25 International Fellowships
- Student volunteer: ACM Conference on Fairness, Accountability, and Transparency (ACM FAT*) 2019