KE YANG

Department of Computer Science
The University of Texas at San Antonio
San Pedro I #410 F,
506 Dolorosa St,
San Antonio, TX 78204

ke.yang@utsa.edu
CAREAI @ UTSA
Personal Website
Google Scholar Profile
+1 (215) 900-5854

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 *responsible data management, fair machine learning,* and *human-centered data science.* In particular, I have focused on developing algorithms to address topics, such as *algorithmic fairness, diversity, transparency*, and *accountability.* Another focus is to develop user-friendly tools to raise awareness of responsible data science among students in related majors and the general public.

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*

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)**, Portland, 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**. A Method and Application System for Detecting Web Spammers. China Invention Patent, (2015) (in Chinese), No. CN201510012860.

Under review

  * **Ke Yang**, Alexandra Burushkina, and Peter Tran. ProFair: Using Data Profiling to Support Fair Learning, 2023.

FELLOWSHIPS, AWARDS, & HONORS

- Sponsored faculty participant for NCFDD Faculty Success Program summer 2024, UTSA
- Postdoctoral Fellowship, *Center for Data Science*, University of Massachusetts Amherst, 2021
- Pearl Brownstein Doctoral Research Award, *Tandon School of Engineering*, New York University, 2021
- Selected Participant, ACM FAccT Ph.D. consortium, 2019
- Student Scholarship, FAT* (previous ACM FAccT), 2018
- Fellowship for Doctoral Study, Beijing Technology and Business University, 2015
- Distinguished Master's Thesis Award, *Graduate School*, Beijing Technology and Business University, 2015
- Master of Science in Computer Science, Summa Cum Laude, Beijing Technology and Business University, 2015
- Bachelor of Engineering in Software Engineering, Summa Cum Laude, Beijing Technology and Business University, 2012

TEACHING

Instructor at the University of Texas at San Antonio

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

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

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

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

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
- 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 2023, 2022, 2021
- ACM Workshop on Data Management for End-to-End Machine Learning (DEEM) at SIGMOD 2021, 2020

Ad-hoc Reviewer

- Ethics reviewer, NeurIPS 2023, 2022, 2021
- 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