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

Founder and Lead Faculty
Cohort for AI REsponsibility (CARE),
The University of Texas at San Antonio — Sep, 2023 - current

Core Faculty
School of Data Science,
The University of Texas at San Antonio — Aug, 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), Sebastian Schelter, Daniel Neill, and Oded Nov

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   2021 - 2023
- Supervisor: 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   2019 - 2021
- Supervisor: Julia Stoyanovich
- Fully funded by a graduate research assistantship
- Selected publication: Fairness in Ranking: A Survey, 2021 (received 138 citations until Aug, 2023)
- More projects at dataresponsibly.github.io

Research Intern
AT&T Labs, New York City   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,   2015 - 2018
- Supervisor: Julia Stoyanovich
- Fully funded by a graduate research assistantship
- Selected publication:
> Measuring Fairness in Ranked Outputs, 2017 (received 338 citations until Aug, 2023)
> A Nutritional Label for Rankings, 2018 (received 112 citations until Aug, 2023)

Research engineer

Elite & Resource (start-up company)   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   2012 - 2015
- Supervisor: 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**, Joshua R. Loftus, and Julia Stoyanovich. Causal Intersectionality and Fair Ranking. Symposium on Foundations of Responsible Computing, (**FORC 2021**), Virtual Conference.

2. 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.

3. **Ke Yang**, Vasilis Gkatzelis, and Julia Stoyanovich. Balanced Ranking with Diversity Constraints. International Joint Conference on Artificial Intelligence (**IJCAI 2019**), Macao, China.

4. **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.

5. 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.

6. **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** and Alexandra Meliou. Non-Invasive Fairness in Learning through the Lens of Data Drift, 2023, available technical report on arXiv.

FELLOWSHIPS, AWARDS, & HONORS

- 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 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

ADVISING & MENTORING

Doctoral Students

– Sinmi Akindele, the University of Texas at San Antonio, College of Sciences, joined in Fall 2023
– Sohanur Rahman, the University of Texas at San Antonio, College of Sciences, joined in Fall 2023
– Asif Ahmed, the University of Texas at San Antonio, College of Sciences, joined in Fall 2023
– Zafeiria Moumoulidou, University of Massachusetts Amherst, Manning College of Information & Computer Sciences, joined in Fall 2018, co-advised with Prof. Alexandra Meliou

Master Students

– Alexandra Burushkina, 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, University of Massachusetts Amherst, Center for Data Science, Data Science for Social Good Summer Program
– Biao Huang, New York University, graduated June 2020, current position: software developer in Chinese lead tech company
– Samasth Norway Ananda, graduated June 2021, current position: software developer at Oracle

Undergraduate Students

– Jensine Raihan, New York University

High school Students

– Pragath Siva, Sharon High School, graduated June 2023, current position: freshman in Computer Science and Economics at University of Illinois Urbana-Champaign

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INVITED TALKS

– Mitigating Bias in Data-driven Tasks, UTSA MATRIX Fall Seminar Series, September, 2023
– 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

Program Committee Member

– ACM Conference on Management of Data (SIGMOD) 2023
– Extending Database Technology (EDBT) 2023, 2022
– The Web Conference (a.k.a. WWW) 2023 Industry, Workshops, Tutorials, Posters, and Demos, 2022 Industry
– IEEE Conference on Data Engineering (ICDE) 2023, 2022 Demo Track
– 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

Reviewer

– Ethics reviewer, NeurIPS 2023, 2022, 2021
– ACM Transactions on Social Computing 2023
– ACM Conference on Human Factors in Computing Systems (CHI) 2021
– Information Systems 2019

Other Activities

– Session co-chair: Responsibility and Privacy at Extending Database Technology (EDBT) 2022
– Technical chair: ACM Workshop on Data Management for End-to-End Machine Learning (DEEM) at SIGMOD 2020
– Student volunteer: ACM Conference on Fairness, Accountability, and Transparency (ACM FAT*) 2019