Yangxinyu Xie

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Education

2022 – **Ph.D. Candidate**, Wharton School, University of Pennsylvania, *Statistics*.

2021 – 2022 **Master of Science**, University of Texas at Austin, *Computer Science*.
Advisors: Anna Gál and Ngoc Mai Tran
Thesis: *Matrix Rigidity: A Survey*

2017 – 2021 **Bachelor of Science**, University of Texas at Austin, *Computer Science, Mathematics*.

Publications

2021
○ Tran NM, Xie Y. Improving random walk rankings with feature selection and imputation. In 2021 IEEE International Conference on Big Data (Big Data) 2021 Dec 15 (pp. 5824-5827). IEEE.

○ Xie, Y, Kulpanowski, D, Ong, J, Nikolova, E, Tran, NM. Predicting Covid-19 emergency medical service incidents from daily hospitalization trends. Int J Clin Pract. 2021; 00:e14920. doi:10.1111/ijcp.14920

○ Xie, Y. On 2×2 Tropical Commuting Matrices. Linear Algebra and its Applications, 620, 92-108.

Preprint
○ Sun, A. Y., Jiang, P., Yang, Z.-L., Xie, Y., and Chen, X.: A graph neural network approach to basin-scale river network learning: The role of physics-based connectivity and data fusion, Hydrol. Earth Syst. Sci. Discuss.

○ Ong, J, Kulpanowski, D, Xie, Y, Nikolova, E, Tran, NM. OpenEMS: an Open-source Package for Two-Stage Stochastic and Robust Optimization for Ambulance Location and Routing with Applications to Austin-Travis County EMS Data.

Honors and Awards

2022 **Dean's Honored Graduate**, *College of Natural Sciences*, University of Texas at Austin.

2022 **Research Distinction**, *College of Natural Sciences*, University of Texas at Austin.

2022 **Longhorn Research Poster Session Award 3rd Place Winner**, *Research Week*, University of Texas at Austin.

2021 **Science4cast Competition 2nd Place Winner**, *IEEE BigData Cup Challenges*, Institute of Advanced Research in Artificial Intelligence, Vienna, Austria.

2021 **UT Austin Member**, *Academy of Undergraduate Researchers Across Texas*.

2021 **George H. Mitchell Student Awards Semi-Finalist**, *Student Success Initiatives*, University of Texas at Austin.

2021 **Smart City Hackathon 1st Place Winner**, *Good Systems*, University of Texas at Austin.

2021	**Distinguished College Scholar**, *College of Natural Sciences*, University of Texas at Austin.
2021	**Cactus Standout Award**, *Cactus Yearbook*, University of Texas at Austin.
2019	**Second Year Excellence Award**, *College of Natural Sciences*, University of Texas at Austin.
Fall 2017	**Dean's List**, *College of Undergraduate Studies*, University of Texas at Austin.

Scholarships, Fellowships and Grants

2021	**Graduate School Application Financial Aid Program**, *oSTEM, Queer in AI*.
2021	**Student Fellow**, *College of Undergraduate Studies*, University of Texas at Austin.
2021, 2020	**AMS Undergraduate Travel Grants for Joint Mathematics Meeting**.

Research Presentations

Talks

2021
- Random walk rankings with feature selection and imputation. IEEE International Conference on Big Data, Virtual, December, 2021.
- Public Opinions on COVID-19 Vaccines from Social Media: A Machine Learning Study. oSTEM 2021 Symposia. Virtual, October, 2021.
- Optimizing Ambulance Allocation and Routing During Extreme Events. Smart Cities Consortium, Good Systems, University of Texas at Austin, Austin, TX, January, 2021.

2020
- Matrix Rigidity, Algebraic and Combinatorial Techniques. 3rd Bringing Young Mathematicians Together Conference, Universitat de Valencia, Virtual, December, 2020.

2019
- On 2 by 2 Tropical Commuting Matrices. Southeastern Undergraduate Mathematics Workshop, Georgia Institute of Technology, Atlanta, GA, August, 2019.

Poster Presentations

2022
- Predicting Covid-19 EMS Incidents from Daily Hospitalization Trends. Longhorn Research Poster Session, UT Austin, April, 2022. *Poster Presentation Award, Third Place*.

2021
- Optimizing EMS Responses during Extreme Events. MAA Undergraduate Poster Session, Joint Mathematics Meetings, January, 2021. *Honorable Mention Poster*.

2020
- On Tropical Commuting Matrices. MAA Undergraduate Poster Session, Joint Mathematics Meetings, Denver, CO, January, 2020.

Attendance

August 2022	**AI+Science Summer School**, *University of Chicago Data Science Institute*, Chicago, IL.
July 2022	**Graduate Student Concentration Week on Metric Geometry**, *Texas A&M Workshop in Analysis and Probability*, College Station, TX.
July 2022	**Graduate Summer School on Algorithmic Fairness**, *Institute for Pure & Applied Mathematics, University of California*, Los Angeles, CA.
June 2022	**PIMS-IFDS-NSF Summer School on Optimal Transport**, *University of Washington*, Seattle, WA.
June 2022	**Data Science for Democracy**, *SNF Agora Institute, Johns Hopkins University*, Baltimore, MD.
May 2022	**Algebraic Statistics 2022**, *University of Hawaii at Manoa*, Honolulu, HI.
November 2021	**Professional Development Summit**, *oSTEM*, Atlanta, GA.
October 2021	**Statistics Undergraduate Research Experience (SURE)**, *Southern Regional Council on Statistics (SRCOS) Summer Research Conference*.
August 2021	**Diversity Mentoring Program**, *Joint Statistical Meeting*, Virtual.
Summer 2021	**Big Data Summer Institute**, *School of Public Health*, University of Michigan, Ann Arbor, MI.
June 2021	**Random Structures in Optimizations and Related Applications Summer School**, *School of Mathematics at the University of Minnesota*, Virtual.
May 2021	**New Horizons in Theoretical Computer Science Summer School**, *ACM Special Interest Group on Algorithms and Computation Theory*, Virtual.
February 2020	**Games, Decisions, Risk and Reliability (GDRR) Undergraduate Workshop**, *The Statistical and Applied Mathematical Sciences Institute*, Durham, NC.
July 2019	**Undergraduate Workshop in Geometry and Topology**, *University of Notre Dame*, Notre Dame, IN.
May 2019	**Undergraduate Modelling Workshop**, *The Statistical and Applied Mathematical Sciences Institute*, Durham, NC.

Teaching Assistantship

University of Pennsylvania

Fall 2022	**Statistical Inference**.

University of Texas at Austin

Spring 2020	**Algorithms and Complexity: Honors**.
Spring 2020	**Predictive Analytics**.
Fall 2019	**Applied Regression and Time Series**.
Fall 2019	**Discrete Mathematics**.

Service

Leadership Positions

Spring 2021 – Spring 2022	**Organizer, Directed Reading Program**, *ACM For Change*, University of Texas at Austin.
Fall 2020 – Spring 2022	**Event Coordinating Officer**, *Mathematicians of Color Alliance of Texas*, University of Texas at Austin.
Fall 2020 – Spring 2021	**UGS Alumni Guide**, *College of Undergraduate Studies*, University of Texas at Austin.
Fall 2018 – Spring 2021	**UGS Ambassador**, *College of Undergraduate Studies*, University of Texas at Austin.
Spring 2020	**Coding in the Classroom Volunteer - Texas School for the Blind and Visually Impaired**, *Department of Computer Science's outreach initiatives*, University of Texas at Austin.
Spring 2019	**ExploreUT Volunteer**, *Department of Computer Science's outreach initiatives*, University of Texas at Austin.
Fall 2018	**Hour of Code Volunteer**, *Department of Computer Science's outreach initiatives*, University of Texas at Austin.
Summer 2018	**Dean's Squad Leader**, *Office of the Dean of Students*, University of Texas at Austin.

Presentations

2021	○ What are tropical commuting matrices? What is ... talk series, Mathematicians of Color Alliance of Texas, University of Texas at Austin, October, 2021.
	○ Establishing the Mathematicians of Color Alliance of Texas. Outreach Poster Session, MAA MathFest, August, 2021.

Professional Experience

Summer 2019	**Software Engineering Intern**, *Sense Talent Labs*, San Francisco, CA.
	○ Led effort to allow sales team to have different sense demo agencies.
	○ Copied and migrated mySQL database for Sense demo agency.
2018–2019	**Data Science Innovation Fellow**, *UT OnRamps*, Austin, TX.
	○ Identified concerning language from student surveys using sentiment analysis.
	○ Analysed distributions and text clouds from student survey results using R and Qualtrics.
2018 – 2019	**ProjectLEAD**, *Leadership and Ethics Institute*, University of Texas at Austin.

Skills

Fluent	Python, R, LaTeX
Intermediate	Java, C#, C, C++, SQL
Basic	HTML, Shell