

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 – **Organizer, Directed Reading Program**, *ACM For Change*, University of Texas at Austin.
- Spring 2022
- Fall 2020 – **Event Coordinating Officer**, *Mathematicians of Color Alliance of Texas*, University of Texas at Austin.
- Spring 2022
- Fall 2020 – **UGS Alumni Guide**, *College of Undergraduate Studies*, University of Texas at Austin.
- Spring 2021
- Fall 2018 – **UGS Ambassador**, *College of Undergraduate Studies*, University of Texas at Austin.
- Spring 2021
- 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