

Yangxinyu Xie

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Education

- 2022 – **Ph.D. Student**, 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

- Preprint ○ [Xie, Y.](#) and Mallick, T. A Comparative Study of Loss Functions: Traffic Predictions in Regular and Congestion Scenarios. arXiv preprint arXiv:2308.15464.
- 2023 ○ Krenn, M., Buffoni, L., Coutinho, B., Eppel, S., Foster, J.G., Gritsevskiy, A., Lee, H., Lu, Y., Moutinho, J.P., Sanjabi, N., Sonthalia, R., Tran, N., Valente, F., [Xie, Y.](#), Yu, R., and Kopp, M. Forecasting the future of artificial intelligence with machine learning-based link prediction in an exponentially growing knowledge network. *Nature Machine Intelligence*, pp.1-10. <https://doi.org/10.1038/s42256-023-00735-0>
- 2022 ○ Sun, A.Y., Jiang, P., Yang, Z.L., [Xie, Y.](#) and Chen, X. A graph neural network (GNN) approach to basin-scale river network learning: the role of physics-based connectivity and data fusion. *Hydrology and Earth System Sciences*, 26(19), pp.5163-5184.
- 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.

Honors and Awards

- 2024 **CityLearn Challenge Forecasting Track 2nd Place**, *NeurIPS*.
Team Members: Tanwi Mallick, Ngoc Tran, Yangxinyu Xie
- 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**, *Research Week*, University of Texas at Austin.
- 2021 **Science4cast Competition 2nd Place**, *IEEE BigData Cup Challenges*, Institute of Advanced Research in Artificial Intelligence, Vienna, Austria.
Team Members: Ngoc Tran, Yangxinyu Xie
- 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**, *Good Systems*, University of Texas at Austin.
Team Members: Jacob Helwig, Jack Si, Yangxinyu Xie
- 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

- 2024 **AMS Graduate Student Travel Grants for Joint Mathematics Meeting**.
- 2023 **Sustainable Research Pathways**, *Sustainable Horizons Institute & U.S. Department of Energy Exascale Computing Project*.
- 2022 **Boyd Harshburger Travel Award**, *The Southern Regional Council on Statistics*.
- 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 Student Travel Grants for Joint Mathematics Meeting**.

Presentations

Research Talks

- 2024 ○ Joint Convergence of Monochromatic Edges in Multiplex Hypergraphs. AMS Contributed Paper Session on Combinatorics, IV. Joint Mathematics Meetings. San Francisco, CA, January, 2024.
- 2023 ○ A Comparative Study of Loss Functions: Traffic Predictions in Regular and Congestion Scenarios. Summer Argonne Student Symposium (Sassy). Virtual, August, 2023.

- 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
 - Towards Label Driven Mondrian Forests. The Southern Regional Council on Statistics, 57th Summer Research Conference, Jekyll Island, GA, October, 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.

Public Scholarship

- 2023
 - Modeling the Impact of the Baltimore Red Line on Job Accessibility, GIS DAY 2023, University of Pennsylvania, November 2023.
 - All Aboard! Assessing Transit Equity in Baltimore, MD, Impact Summit, August 2023.

Outreach

- 2021
 - Establishing the Mathematicians of Color Alliance of Texas. Outreach Poster Session, MAA MathFest, August, 2021.

Teaching Assistantship

University of Pennsylvania

- Fall 2023 **Statistical Methodology**, *Graduate.*
- Fall 2022 **Applied Econometrics I**, *Graduate.*

University of Texas at Austin

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

Mentorship

- Summer 2023 **Graduate Student Mentor**, *Undergraduate Research Program in Data Science for Democracy*, SNF Agora Institute, Johns Hopkins University.
- Spring 2023 **Graduate Student Mentor**, *Undergraduate Research Program in Probability and Statistics*, University of Pennsylvania.
- Fall 2022 **Graduate Student Mentor and Panelist**, *3rd annual Statistics Undergraduate Research Experience (SURE)*, The Southern Regional Council on Statistics.
- Spring 2021 – **Mentor**, *Directed Reading Program, ACM For Change*, University of Texas at Austin.
Spring 2022
- 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.

Service

- Spring 2023 – **Participant**, *Michael S. Hinson, Jr. LGBTQ+ Leadership Pipeline Program*, Philadelphia Office of LGBT Affairs .
current
- Fall 2022 – **Board Member**, *Wharton Doctoral Council*, University of Pennsylvania.
current
- Spring 2023 **Volunteer**, *Community Engagement Program*, University of Pennsylvania.
- Spring 2021 – **Organizer**, *Directed Reading Program, ACM For Change*, University of Texas at
Spring 2022 Austin.
- Fall 2020 – **Event Coordinating Officer**, *Mathematicians of Color Alliance of Texas*, University
Spring 2022 of Texas at Austin.
- 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
- Summer 2018 **Dean's Squad Leader**, *Office of the Dean of Students*, University of Texas at Austin.

Professional Experience

- Summer 2023 **Visiting Student**, *Argonne National Laboratory*, Lemont, IL.
- Summer 2019 **Software Engineering Intern**, *Sense Talent Labs*, San Francisco, CA.

2018–2019 **Data Science Innovation Fellow**, *UT OnRamps*, Austin, TX.
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