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

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

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 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 – Spring 2022	**Mentor**, *Directed Reading Program, ACM For Change*, 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.

Service

Spring 2023 – current	**Participant**, *Michael S. Hinson, Jr. LGBTQ+ Leadership Pipeline Program*, Philadelphia Office of LGBT Affairs .
Fall 2022 – current	**Board Member**, *Wharton Doctoral Council*, University of Pennsylvania.
Spring 2023	**Volunteer**, *Community Engagement Program*, University of Pennsylvania.
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.
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