Yangxinyu Xie

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Education

2022 **Master of Science**, University of Texas at Austin, *Computer Science*.

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

Publication

2021 ○ Xie, Y. On 2 × 2 Tropical Commuting Matrices. *Linear Algebra and its Applications, 620, 92-108.*

Preprint

2021 ○ Tran, N.M., Nikolova, E., Kulpanowski, D., Xie, Y. and Ong, J. Predicting Covid-19 EMS Incidents from Daily Hospitalization Trends.

Research Presentations

Talks

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.

○ Matrix Rigidity, Algebraic and Combinatorial Techniques. Gulf Coast Undergraduate Research Symposium, Rice University, Virtual, October, 2020.

2019 ○ On Tropical Commuting Matrices. Forty-Seventh Annual Conference, Miami University, Oxford, OH, September, 2019.

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

Poster Presentations

2021 ○ Mathematicians of Color Alliance of Texas. Outreach Poster Session, MAA MathFest, August, 2021.

2021	○ Optimizing EMS Responses during Extreme Events. MAA Undergraduate Poster Session, Joint Mathematics Meetings, January, 2021. *Honorable Mention Poster*.
2020	○ Optimizing EMS Responses during Extreme Events. COVID-19 Conference, University of Texas at Austin, Austin, TX, November, 2020.
	○ On Tropical Commuting Matrices. MAA Undergraduate Poster Session, Joint Mathematics Meetings, Denver, CO, January, 2020.
2019	○ On Tropical Commuting Matrices. Undergraduate Mathematics Symposium at University of Illinois at Chicago, Chicago, IL, November, 2019.

Research Experience

Spring 2020 - Present **Reading & Thesis Course on Matrix Rigidity**, *Department of Computer Science*, University of Texas at Austin.
- ○ Advisor: Dr. Anna Gal
- ○ Survey recent advances in matrix rigidity and computational complexity.

Summer 2021 **REU Participant**, *Big Data Summer Institute*, University of Michigan School of Public Health.
- ○ Advisor: Dr. Johann Gagnon-Bartsch, Juejue Wang
- ○ Integrated the state-of-the-art NLP models (BERT & BART) to understand topics around Covid-19 vaccine discussions on Twitter in 2021.

Fall 2020 - Summer 2021 **Undergraduate Research Assistant**, *Good Systems Y2 Project - Optimize EMS Responses during Extreme Events*, University of Texas at Austin.
- ○ Advisor: Dr. Ngoc Mai Tran
- ○ Gave a detailed spatiotemporal analysis of current performance of the Austin Travis County EMS department.

Fall 2019 **Undergraduate Research Assistant**, *Livia S. Eberlin Research Group*, University of Texas at Austin.
- ○ Investigated machine learning models such as Relaxed Lasso and Support Vector Machines to classify biological samples from molecular imaging data

Attendance

August 2021 **Diversity Mentoring Program**, *Joint Statistical Meetings*, Virtual.

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.

July 2019 **Undergraduate Knot Theory Conference**, *University of Washington at Bothell*, Bothell, WA.

| February 2019 | **Undergraduate Workshop**, *The Statistical and Applied Mathematical Sciences Institute*, Durham, NC. |
| October 2018 | **Modern Math Workshop**, *SACNAS National Conference*, San Antonio, TX. |

Participation

Fall 2021	**Science Sprint**, *College of Natural Sciences, University of Texas at Austin*.
	Building Models to Detect, Project, and Combat Covid-19
Spring 2020	**Directed Reading Program**, *Department of Mathematics, University of Texas at Austin*.
	Knots, Links and Spatial Graphs. Supervised by Alexandra Embry
June 2019	**Undergraduate Modelling Workshop**, *The Statistical and Applied Mathematical Sciences Institute*.
	Allison Duprey, Fanuel Sisay, Natasha Stewart, and Yangxinyu Xie. "Along the SINDy Frontier: Sampling for Equation Learning Methods". Supervised by Dr. John Nardini
Spring 2019	**Directed Reading Program**, *Department of Mathematics, University of Texas at Austin*.
	Introduction to Support Vector Machines, as an example of convex optimisation. Supervised by Wenbo Zhang

Honors and Awards

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	**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.

Teaching

Spring 2020	**Undergraduate Proctor**, *Department of Computer Science*, University of Texas at Austin.
	○ Algorithms and Complexity: Honours
Spring 2020	**Undergraduate Grader**, *Department of Mathematics*, University of Texas at Austin.
	○ Predictive Analytics
Fall 2019	**Undergraduate Grader**, *Department of Mathematics*, University of Texas at Austin.
	○ Discrete Mathematics
	○ Applied Regression and Time Series

Service

| Fall 2021 – Present | **UGS Student Fellow**, *College of Undergraduate Studies*, University of Texas at Austin. |
| Spring 2021 – Present | **DEI Committee Member**, *ACM For Change*, University of Texas at Austin. |

Fall 2020 – Present	**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.

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.
	○ Python, mySQL, Flask, Peewee, Click, Git, Docker, Bash, Jenkins
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.
	○ Python, R, scikit-learn, NumPy, SciPy, Pandas, nltk
2018 – 2019	**ProjectLEAD**, *Leadership and Ethics Institute*, University of Texas at Austin.