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, Valencia, Spain, December, 2020.
○ Matrix Rigidity, Algebraic and Combinatorial Techniques. Gulf Coast Undergraduate Research Symposium, Rice University, Houston, TX, 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 ○ Optimizing EMS Responses during Extreme Events. MAA Undergraduate Poster Session, Joint Mathematics Meetings, January, 202. *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

Summer 2021 **REU Participant**, *Big Data Summer Institute*, University of Michigan School of Public Health.

Fall 2020 - Spring 2021 **Undergraduate Research Assistant**, *Good Systems Y2 Project - Optimize EMS Responses during Extreme Events*, University of Texas at Austin.
- Advisor: 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

February 2020 **Games, Decisions, Risk and Reliability (GDRR) Undergraduate Workshop**, *The Statistical and Applied Mathematical Sciences Institute*, Durham, NC.

September 2019 **Big Ten+ Graduate School Exposition**, *Purdue University*, West Lafayette, IN.

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

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

Honors and Awards

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.

Service

Fall 2020 – Present **Event Coordinating Officer**, *Mathematicians of Color Alliance of Texas*, University of Texas at Austin.

Fall 2020 – Present **UGS Alumni Guide**, *College of Undergraduate Studies*, University of Texas at Austin.

Fall 2018 – Present **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.