

Yangxinyu Xie

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Education

2021 – 2022 **Master of Science**, University of Texas at Austin, *Computer Science*.

2017 – 2021 **Bachelor of Science**, University of Texas at Austin, *Computer Science, Mathematics*.
GPA: 3.92

Publication

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

Preprint

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

Skills

Fluent Python, R, \LaTeX , C++
Intermediate Java, C#, C, SQL
Basic HTML

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.

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
 - Establishing the 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 - **Matrix Rigidity**, *Supervised by Dr. Anna Gal.*
Present Survey recent advances in matrix rigidity and computational complexity
- Summer 2021 **Topic Mining from Covid-19 Twitter Data**, *Supervised by Dr. Johann Gagnon-Bartsch and 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 - **Optimizing EMS Responses during Extreme Events**, *University of Texas at Austin,*
Spring 2021 *Supervised by Dr. Ngoc Mai Tran.*
Gave a detailed analysis of current performance of the Austin Travis County EMS department
- Summer 2020 **Strictly Second Shortest Simple Path**, *Supervised by Dr. Vijaya Ramachandran.*
Investigated graph theoretical tools to look for strictly second shortest simple path in simple graphs with strictly positive edges
- Fall 2019 **Machine Learning for Identifying Disease Markers**, *Supervised by Dr. Livia S. Eberlin.*
Investigated Relaxed Lasso and Support Vector Machines to classify biological samples from molecular imaging data

Attendance

- August 2021 **Diversity Mentoring Program**, *Joint Statistical Meeting*, 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

Teaching

- Spring 2020 **Undergraduate Proctor**, *Department of Computer Science, University of Texas at Austin*.
 - Algorithms and Complexity: Honors
- 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 – **UGS Student Fellow**, *College of Undergraduate Studies*, University of Texas at Austin.
Present
- Spring 2021 – **DEI Committee Member**, *ACM For Change*, University of Texas at Austin.
Present
- Fall 2020 – **Event Coordinating Officer**, *Mathematicians of Color Alliance of Texas*, University of Texas at Austin.
Present
- 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.

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.