

# AMBER DAY

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## RESEARCH INTERESTS

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### Statistics and Data Sciences

- Deep Learning, Time Series Analysis, Complex-Valued Neural Networks, Signal Denoising, Classification, Bayesian Optimization, Bayesian Active Learning, Applications in Physics

## RESEARCH EXPERIENCE

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### Complex-Valued Signal Denoising and Bayesian Optimization for Detection of Synthetic Opioids with Natalie Klein (Los Alamos National Laboratory)

- *Current:* Working on developing/applying machine learning and statistical tools for signal detection and for denoising complex-valued time series data. Using Bayesian optimization to inform physics experiments. Running jobs on the Darwin cluster.

### Deep Learning with Sinead Williamson (UT Austin)

- *Current:* Working on developing deep learning models for physics applications using PyTorch.

### Bayesian Sparse Functional Graphical Models with Abhra Sarkar (UT Austin)

- Worked on developing an algorithm to estimate the edges in functional graphical models.

### Genome-Wide Association Study (GWAS) with Arbel Harpak (UT Austin)

- Compared single nucleotide polymorphism (SNP) effect sizes on educational attainment. Learned the basics of running jobs on Texas Advanced Computing Center (TACC).

### Prime Numbers with Gabriel Prajitura (SUNY Brockport)

- Compared differences of consecutive prime numbers.

## PUBLICATIONS

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Natalie Klein, Amber J. Day, Harris Mason, Michael W. Malone, Sinead A. Williamson. Denoising Neural Networks for Nuclear Resonance Spectroscopy. Submitted to ICASSP 2023.

## PRESENTATIONS

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**Detecting Synthetic Opioids with NQR Spectroscopy and Complex-Valued Signal Denoising** - Los Alamos National Laboratory Student Symposium, August 2022

## POSTER SESSIONS

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**WiML Workshop @ NeurIPS** - Detecting Synthetic Opioids with NQR Spectroscopy and Complex-Valued Signal Denoising, November 2022

**MAA Seaway Conference** - Comparing Differences of Consecutive Prime Numbers, April 2019

**SUNY Brockport Scholars Day** - Comparing Differences of Consecutive Prime Numbers, April 2019

## EDUCATION

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### University of Texas at Austin

*Statistics and Data Sciences, PhD - GPA - 3.97*

**August 2020 – present**

*Austin, Texas*

### The College at Brockport

*Mathematics, MA - GPA - 4.00*

**August 2018 – August 2020**

*Brockport, New York*

### University of Rochester

*Mathematics Education, MS - GPA - 3.97*

**May 2016 – August 2017**

*Rochester, New York*

### Texas State University

*Mathematics, BS - GPA - 4.00*

**January 2014 – May 2016**

*San Marcos, Texas*

### Austin Community College

*Mathematics, AS - GPA - 3.66*

**January 2011 – December 2013**

*Austin, Texas*

RELEVANT EXPERIENCE

|   |   |
|---|---|
| <b>Graduate Research Assistant</b><br><i>May 2022 – Present</i> <ul style="list-style-type: none"><li>Conduct machine learning research in the Statistical Sciences Group.</li></ul>                  | <b>Los Alamos National Laboratory</b><br><i>Remote</i>        |
| <b>Teacher</b><br><i>February 2020 – August 2020</i> <ul style="list-style-type: none"><li>Instruct high school students in algebra and geometry.</li></ul>   | <b>Rochester City School District</b><br><i>Rochester, NY</i> |
| <b>Adjunct Lecturer</b><br><i>August 2019-January 2020</i> <ul style="list-style-type: none"><li>Instruct students in business calculus.</li></ul>  | <b>SUNY Brockport</b><br><i>Brockport, NY</i>                 |
| <b>Adjunct Professor</b><br><i>August 2018-January 2020</i> <ul style="list-style-type: none"><li>Instruct students in developmental mathematics.</li></ul>   | <b>Monroe Community College</b><br><i>Brighton, NY</i>        |
| <b>Graduate Assistant</b><br><i>August 2018-January 2020</i> <ul style="list-style-type: none"><li>Tutor Mathematics for the Living Learning Communities program.</li></ul>                           | <b>SUNY Brockport</b><br><i>Brockport, NY</i>                 |
| <b>Educational Opportunity Program (EOP) Instructor</b><br><i>Summer 2019</i> <ul style="list-style-type: none"><li>Teach college survival skills to pre-freshman in summer bridge program.</li></ul> | <b>Monroe Community College</b><br><i>Brighton, NY</i>        |

AWARDS

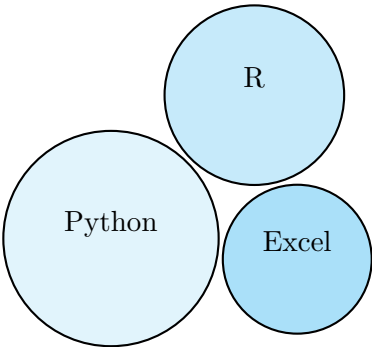
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| <b>UT Austin:</b> Dean’s Mentoring Fellowship – \$34,000, tuition waiver & benefits – August 2020 & August 2021 |
| <b>UT Austin:</b> Recruiting Bonus – \$4,000 – August 2020  |
| <b>SUNY Brockport:</b> Graduate Assistantship – \$15,500 – August 2018  |
| <b>University of Rochester:</b> Warner School Scholarship – \$53,000 – May 2016                                 |
| <b>Texas State University:</b> Emmie Craddock Scholarship – \$1,500 – April 2015                                |
| <b>Texas State University:</b> Ross and Sarah Wayment Endowed Scholarship – \$1,500 – April 2015                |
| <b>Austin Community College:</b> Austin Kiwanis Club Scholarship – \$1,000 – August 2011                        |
| <b>Austin Community College:</b> Austin Rotary Club Scholarship – \$1,200 – August 2011                         |

COURSEWORK

|                       |                          |                         |                |
|-----------------------|--------------------------|-------------------------|----------------|
| • Bayesian Statistics | • Theoretical Statistics | • Linear Models         | • Mathematical |
| • Monte Carlo Methods | • Statistical Modeling   | • Missing Data Analysis | Statistics     |

TECHNICAL SKILLS

Statistical & Data Science



Other Software & Tools

