

# HALEY ROSSO

Atlanta, Georgia

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## EDUCATION

<b>Emory University</b> <i>Computational Mathematics Ph.D.</i>	<b>08 2021 – 05 2026</b> <i>Atlanta, Georgia</i>
<b>University of Houston</b> <i>Bachelors of Science in Mathematics, 3.96 GPA</i>	<b>08 2016 – 12 2020</b> <i>Houston, Texas</i>
<b>Lone Star College</b> <i>Associates of Science, 4.0 GPA</i>	<b>08 2016 – 05 2018</b> <i>Conroe, Texas</i>

## SKILLS

- **Programming:** Object-oriented coding, MATLAB, Pytorch, SciPy, scikit-learn, FORTRAN, GIS, PDAF, Github/Gitlab, HPC, ADCIRC, html/css, bash
- **Mathematics:** Kalman filtering, probability theory, measure theory, numerical optimization, continuous-time deep neural networks, normalizing flows, simulation-based inference
- **Data Visualization:** Matplotlib, Plotly, GeoPandas
- **Communication:** Technical writing, public speaking, leadership

## CONFERENCE PRESENTATIONS

<b><u>Comparison of Weight-Parameterization Methods in Neural ODEs</u></b> 	<b>10 2024</b>
SIAM Mathematics of Data Science Conference, Fort Worth, TX	
<b><u>Data Assimilation to Improve Estimates of Hurricane Storm Surge</u></b> 	<b>02 2024</b>
SIAM Conference on Uncertainty Quantification, Atlanta, GA	
<b><u>Weight Parameterization in Neural ODEs for Surrogate Modeling and Sampling</u></b> 	<b>10 2022</b>
SIAM Mathematics of Data Science Conference, San Diego, CA	
<b><u>Regularization Schemes for Linear Inverse Problems</u></b> 	<b>07 2020</b>
University of Houston Summer Undergraduate Research Day Poster Session, Houston, TX	
<b><u>Using Neural Networks to Classify PDEs</u></b> 	<b>07 2019</b>
The Data Science and Image Analysis Conference of the Pacific Northwest, Pullman, WA	

## PUBLICATIONS

<b>Data Assimilation to Improve Estimates of Hurricane Storm Surge</b>	<b>in prep</b>
<b>Weight Parameterization in Continuous Time Deep Neural Networks for Surrogates</b>	<b>in prep</b>
<b>Grouped Sensitivity Analysis for Geologic Disposal Safety Assessment</b>	<b>10 2023</b>
<i>Sandia Summer Program 2023 Proceedings</i>	

## RESEARCH EXPERIENCE

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### Sandia National Labs

06 2022 – 11 2024

#### Student Intern

Albuquerque, NM and Atlanta, GA

- Performed grouped sensitivity analysis for geologic disposal safety assessment
- Wrote a peer-reviewed publication and gave a talk to the Sandia UQ working group to share research and convey results
- Extended summer internship into a year-round position where I will be studying Bayesian inverse problems for ice sheet modeling

### Sandia National Labs

01 2022 – 12 2022

#### Graduate Research Assistant

Atlanta, Georgia

- Performed a qualitative assessment of weight parameterization in neural ODEs using various architectures and basis functions
- Traveled to Sandia National Labs to conduct research, work at the facility, and foster collaboration between institutions
- Presented work on behalf of the project at SIAM MDS22

## TEACHING EXPERIENCE

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### Emory Mathematics Department

08 2022 – 06 2023

#### Teaching Assistant

Atlanta, Georgia

- Conducted lab sessions in Linear Algebra for two sections weekly
- Responsible for grading of assignments and exams
- Planned material for lab sessions and provided individualized help to students

### Annunciation Orthodox School

01 2021 – 06 2021

#### Teaching Assistant

Houston, Texas

- Conducted individualized and small group work with 7th grade mathematics students
- Oversaw lessons and class-time activities alongside math faculty
- Organized material to aid in building an efficient course framework during the COVID-19 pandemic

### General Academic Inc.

08 2020 – 06 2021

#### Mathematics Tutor

Houston, Texas

- Tutored students in Algebra, Geometry, Precalculus, Calculus I, II, and III
- Developed lesson plans, mini-lectures, and notes to ensure students' success
- Advised students for standardized testing, particularly the ISEE private school entrance exams, the SAT, and the ACT

### UH Department of Mathematics

08 2019 – 07 2020

#### Grader

Houston, Texas

- Performed weekly grading of Calculus 1 assignments for a large course
- Assisted in grading exams for Calculus 1, Precalculus, and Engineering Math courses
- Facilitated exam proctoring and grading for a Winter 2019 Finite Math course

## SERVICE

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### Emory SIAM Student Chapter

09 2022 – present

#### President

Atlanta, GA

- Helped organize math-related events for SIAM Student Chapter

### Emory Office of LGBT Life

07 2022 – 06 2023

#### Queer Grads Community Group Leader

Atlanta, GA

- Facilitated conversation and support within the student group
- Organized events, planned discussions, and delegated funding and resources
- Promoted community amongst LGBT grad students to ensure a positive and inclusive environment

### Pi Mu Epsilon University of Houston Chapter

05 2020 – 12 2020

#### President

Houston, TX

- Planned group events for undergraduate mathematics students at the University of Houston
- Conducted community outreach to create an inclusive club that raises awareness of the inequities in mathematics

## ACADEMIC AWARDS AND HONORS

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- Women in Natural Sciences Fellowship - Laney Graduate School
- Summer Undergraduate Research Fellowship - UH Honors College
- Dean's Distinguished Scholar's List (Top 3.5 %) - UH College of Natural Sciences
- Travel Grant – The Data Science and Image Analysis Conference of the Pacific Northwest
- Travel Grant – Georgia Institute of Technology
- The Honors College at the University of Houston Dean's List
- Blanch B. Grover Scholarship – UH Mathematics Department