Sam Pease

She/Her

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About me

Innovative research mathematician with a passion for interconnected areas, such as the Langland Program, which demand proficiency in diverse subjects. Eager to apply my skills in mathematics, coupled with a background in computer science and exceptional communication skills, to a dynamic research role within fields like data science or machine learning. Committed to utilizing my unique perspective as a trans woman to contribute to the development of equitable and inclusive systems.

Education

Ph.D. in Mathematics

Rutgers University-Newark

May 2025 — 4.0/4.0 GPA

Research Topics: Langlands Program, Number and Representation Theory

Advisor: Chen Wan, Ph.D

B.S. in Mathematics & Computer Science with Distinction

Duke University

May 2020 — 3.7/4.0 GPA

Thesis: *Computing Values of Symmetric Square L-Functions using the Pullback Formula.*

Advisor: Aaron Pollack, Ph.D

Skills

- Programming: Python, Sage, Jupyter Notebook, Java, Git
- Quantitative and Problem-Solving: Demonstrated strength in quantitative analysis and problem-solving, with a proven ability to conduct research and quickly grasp new concepts.
- Communication: Adept at simplifying and effectively conveying complex ideas to diverse audiences.
- Time Management and Independence: Successfully managed time and demonstrated independence while leading a multi-year research project.

Research Experience

PhD Researcher

2020-Present

Rutgers University - Newark — *Newark, NJ*

- Lead multi-year independent research project
- Cultivate expertise through continuous review of current academic research papers
- Collaborated effectively with peers and mentors to articulate complex concepts, fostering collective understanding and advancing the research agenda

Program for Research for Undergraduates (PRUV) Fellow

2019-2020

Duke Mathematics Department — *Durham, NC*

- Utilized Sage programming to extract and manipulate database data, employing advanced linear algebra techniques to convert theoretical values into tangible results.
- Presented research findings across various levels to diverse audiences, showcasing effective communication skills.

WindAid Engineering Internship

Summer 2017

International NGO — *Trujillo, Peru*

- Conducted research and contributed to design improvements for wind turbines
- Designed and implemented an Arduino circuit to monitor and report data from remote wind turbine locations

Work Experience

Calculus Professor

Spring 2022, Summer 2021&2023

Rutgers University - Newark Math Department — *Newark, NJ*

- Taught Class, answered questions, and held office hours to reinforce learning
- Developed lesson plans, created tests, and managed homework assignments

Teaching Assistant

Fall 2021, Fall 2022 - Spring 2024

Rutgers University - Newark Math Department — *Newark, NJ*

- Led engaging recitation sections and held productive office hours
- Achieved an above-average pass rate and received excellent reviews from students

Math Tutor

Fall 2017 - May 2021

Duke Math Help Room & Rutgers Tutoring Center — *Durham, NC & Newark, NJ*

- Assisted in teaching College and Linear Algebra and single and multivarible Calculus
- Played a key role in an initiative to solidify prerequisite math material in students' understanding
- Tutored students one-on-one outside of the help room

Lifeguard

Fall 2016 - Spring 2020

Duke Aquatics Center — *Durham, NC*

- Maintained concentrated observation of pool and its users in order to anticipate problems and to identify an emergency quickly
- Executed rescues and initiated emergency actions as needed

Projects

Cat Identification with Neural Network from Scratch

Spring 2023

Rutgers University - Newark — *Newark, NJ*

- Developed a neural network from scratch in Jupyter Notebook
- Analyzed various network topologies and assessed the impact of activation functions on accuracy

Differentiating Forest using Topological Data Analysis

Spring 2017

Duke University — *Durham, NC*

- Analysed Lidar readings of forest canopies to determine forest characteristics
- Used topological data analysis to differentiate data