

# Sara Wilson

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🐙 sararwil

## Education

### University of Pittsburgh

Bachelor of Science in Mathematics  
Minor in Computer Science, GSWS Certificate

Pittsburgh, PA  
Expected May 2026

## Research Experience

### University of Alabama

Semiconductor Engineering Researcher

Tuscaloosa, AL  
June 2025 – July 2025

- Worked on project concerning wireless power transfer for monolithic and heterogeneous integration of 3D integrated devices that rely heavily on computation, numerical simulation, and design

### West Virginia University

Applied Analysis Researcher

Morgantown, WV  
June 2024 – July 2024

- Expanded work involving a  $2 \times 2$  Keyfitz-Kranzer type balance system with varying Chaplygin gas, a model for dark energy and dark matter
- Utilized numerical methods, particularly the local Lax-Friedrich scheme, adapting the implementation for time-dependent wave speeds
- Analyzed system dynamics, verifying delta-shocks and regional changes over time

## Teaching Experience

### University of Pittsburgh

Teaching Assistant

Pittsburgh, PA  
Aug 2024 – Current

- Instructed weekly recitation sessions and held office hours to reinforce lecture material and facilitate active student engagement

### University of Pittsburgh

Mathematics Tutor

Pittsburgh, PA  
Jan 2023 – Aug 2024

- Provided direction and guidance via individualized sessions to students struggling in mathematics, from college algebra through differential equations

## Projects and Publications

### An Analysis of a $2 \times 2$ Keyfitz-Kranzer Type Balance System with Varying Generalized Chaplygin Gas

Sept 2024

Jack Frew, Nigel Keyser, Ethan Kim, Griffin Paddock, Camden Toumbleston, **Sara Wilson**, Charis Tsikkou

[10.1063/5.0231413](https://doi.org/10.1063/5.0231413) [🔗](#)

## Professional Development

### Princeton University

Summer School in Fluids and Computer Assisted Proofs

Princeton, NJ  
Aug 2025

### University of Alabama

Summer Research Symposium

Tuscaloosa, AL  
July 2025

**Texas A&M University**  
Summer School in Modeling and Simulation of PDEs

College Station, TX  
May 2025

**Joint Mathematics Meetings**  
Pi Mu Epsilon Poster Session

Seattle, WA  
Jan 2025

**West Virginia University**  
Summer Research Symposium

Morgantown, WV  
July 2024

## Skills

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**Technical:** MATLAB, Python, MIPS, Java,  $\text{\LaTeX}$