

Sara R. Wilson

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Education

University of Pittsburgh

Bachelor of Science in Mathematics

Minor in Computer Science

Certificate in Gender, Sexuality, and Women's Studies

Pittsburgh, PA

Expected May 2026

Relevant Coursework:

Graduate:

- Numerical Solutions of Partial Differential Equations

Undergraduate:

- Numerical Analysis, Numerical Linear Algebra, Real Analysis, Partial Differential Equations, Ordinary Differential Equations, Logic & Model Theory, Graph Theory, Abstract Algebra, Honors Physics, Space Flight, Algorithms & Data Structures, Assembly Language

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 2×2 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 and analyzing 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

Publications

An Analysis of a 2×2 Keyfitz-Kranzer Type Balance System with Varying Generalized Chaplygin Gas

Sept 2024

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

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

Projects

Simulating an Electromagnetic Field on a Finite Domain

May 2025

Rebecca Gabrielsson, Audrie Ibáñez, *Sara Wilson*

- Developed a 2D FDTD solver for Maxwell's equations with both a Uniform PML and Split PML as an absorbing boundary layer

Professional Development

Princeton University

Princeton, NJ

Summer School in Fluids and Computer Assisted Proofs

Aug 2025

University of Alabama

Tuscaloosa, AL

Summer Research Symposium

July 2025

Texas A&M University

College Station, TX

Summer School in Modeling and Simulation of PDEs

May 2025

Joint Mathematics Meetings

Seattle, WA

Pi Mu Epsilon Poster Session

Jan 2025

West Virginia University

Morgantown, WV

Summer Research Symposium

July 2024

Honors & Awards

Dean's List

Edna M. Heck Scholarship

Society of Women Engineers Scholarship & Certificate of Merit in Math and Science

Greater Pittsburgh Police FCU Scholarship

Skills

Programming: Python, MATLAB, Java, MIPS

Scientific Computing: Finite Difference Methods, Finite Element Methods

Software/Tools: Ansys Maxwell, L^AT_EX, Git, VS Code, Paraview

Other: Technical Writing, Data Visualization