

# Will Rosenberg

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## Education

### Arizona State University

PHD IN COMPUTER SCIENCE

Advisor: Yan Shoshitaishvili - SEFCOM Laboratory

Tempe, AZ

Started August 2025

### Washington University in St. Louis (WashU)

BACHELOR OF SCIENCE IN COMPUTER SCIENCE, PHYSICS, AND MATHEMATICAL SCIENCES

Summa Cum Laude

St. Louis, MO

2021 - 2025

#### RELEVANT COURSEWORK

Systems, Network, & Computer Security | Reverse Engineering & Malware Analysis | Systems Software | Operating Systems | Networks | Number Theory & Cryptography | Compilers | Analysis of Algorithms

## Research Interests

Broad interest in software and systems security with a particular passion for automated program analysis and binary exploitation techniques.

## Research Experience

### Computer Security and Privacy Laboratory

McKELVEY SCHOOL OF ENGINEERING, WASHINGTON UNIVERSITY IN ST. LOUIS

August 2023 - May 2025

- Investigated vulnerabilities in open-source cyber-physical libraries written in C/C++ using libFuzzer and AFL.
- Collected and systematized timing bugs affecting open-source real-time operating systems, including FreeRTOS, Zephyr, and RIOT OS.
- Explored scripting and automation techniques in mainstream decompilers.

### Quantum Monte Carlo Group for Nuclear Physics

DEPARTMENT OF PHYSICS, WASHINGTON UNIVERSITY IN ST. LOUIS

May 2022 - December 2022

- Predicted the numerical solution of a nucleon-nucleon scattering problem using a neural network with the goal of applying this network in the optimization problem of nuclear interaction models.
- Researched the effectiveness of machine learning models to predict second-order differential equations and designed models while weighing the trade-offs between speed and accuracy.
- Presented my findings at the Midstates Consortium for Math and Science and the WashU Physics Research Symposium.

### Physics Capstone Project

BASIS SCOTTSDALE

September 2020 - August 2021

- Wrote a Python project to model the thermal distribution of the asteroid 2867 Steins using iterative approximation methods and calculated the Yarkovsky effect to predict potential perturbations to the asteroid's orbit.
- Published "Predicting Orbital Resonance of 2867 Šteins Using the Yarkovsky Effect," Journal of Emerging Investigators.

## Teaching Experience

### Computer Science Teaching Assistant (TA)

WASHINGTON UNIVERSITY IN ST. LOUIS

August 2021 - May 2025

- Head TA for Systems Software and previously a TA for Introduction to Computer Security, Object-Oriented Workshop, and Introduction to Computer Science.
- Assist students with debugging labs in C, C++, Python, and Java.
- Organize TA grading efforts and produce supporting materials for class labs.

## Cybersecurity Boot Camp

BEARSHELL, WASHINGTON UNIVERSITY IN ST. LOUIS

December 2023 - August 2024

- Designed an introductory boot camp for cybersecurity and capture the flag (CTF) competitions, as part of an initiative to increase membership in Bearshell, WashU's CTF and cybersecurity club.
- Doubled the club membership and increased freshman participation.
- Built custom challenges using Docker and Flask to emphasize active participation during meetings.
- Created a custom pwn.college dojo to provide practice challenges for the boot camp.

## Publications and Presentations

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### PUBLICATIONS

- Rosenberg, et al. 2021. *Predicting Orbital Resonance of 2867 Šteins Using the Yarkovsky Effect*. Journal of Emerging Investigators. doi: 10.59720/20-172

### POSTER PRESENTATIONS

- Rosenberg, et al. November 2022. Training a feed-forward neural network to solve the S-wave nucleon-nucleon scattering problem. Poster Session presented at the Midstates Consortium for Math and Science and the Washington University Physics Research Symposium.

## Technical Experience

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### BearShell Cybersecurity Club

WASHINGTON UNIVERSITY IN ST. LOUIS

August 2022 - May 2025

- Captain of WashU's CTF and cybersecurity club.
- Regularly compete in CTF hacking competitions with a focus on binary exploitation and cryptography, publishing write-ups after competitions.
- Prepared lectures and activities for weekly meetings, teaching topics in binary exploitation, web security, reverse engineering, forensics, and cryptography.

## Achievements & Awards

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- Outstanding Senior Award - Washington University Computer Science and Engineering Department
- Distinction - Washington University Department of Physics
- Washington University Dean's List Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, Spring 2024, Fall 2025
- Sigma Pi Sigma National Physics and Astronomy Honor Society Inductee
- Completed Arizona State University's pwn.college - Advanced Exploitation coursework, earning a blue belt.
- Qualified and competed at the Mid-Central Regional Collegiate Programming Contest in 2022 and 2023.

## References

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### Ning Zhang, Associate Professor

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### Steve Cole, Senior Lecturer

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### James Orr, Lecturer

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