Mitchell Zakocs

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Experience

Arizona State University SEFCOM Lab • Computer Security Researcher • Tempe, AZ *Jun 2021 - Present*

- ❖ Developed novel data analysis and fuzzing techniques to help lab secure $3 million in DARPA AIxCC competition
- ❖ Played CTF (2x DEFCON Finals) w/ Shellphish solving difficult exploitation and reverse-engineering challenges

Tesla • Product Security Engineer Intern • Palo Alto, CA *May 2024 - Aug 2024*

- ❖ Audited remote attack vectors and wrote 15+ QEMU fuzzers for closed-source radio & Bluetooth firmware images
- ❖ Ported Linux app sandboxing to Optimus, reduced filesystem and syscall attack surface by 90% on critical services

NASA • Software Simulation Engineer Intern • Greenbelt, MD *May 2022 - Aug 2022*

- ❖ Developed a simulator in Python for a laser/optical communications module on the International Space Station
- ❖ Reverse-engineered 6 different inter-connected hardware systems and firmware specs for accurate simulation

Projects

AFL++ Ultimate Protobuf Mutator (github.com/mzakocs/AFLplusplus_ultimate_protobuf_mutator**)** *2025*

- ❖ Authored a library to use protobuf mutators with AFL++ for structured input or complex systems fuzzing
- ❖ Tested on satellite and VP9 video codec fuzzers, improved code coverage by 20%+ over a basic harness

Qualcomm Baseband Scripts (github.com/mzakocs/qualcomm_baseband_scripts**)** *2023*

- ❖ Released 10+ advanced Python tools for reverse-engineering firmware from Qualcomm cellular baseband SoCs
- ❖ Over 150 stars on GitHub; contains bleeding-edge techniques with confirmed use in many VR and security firms

Coconut CubeSat (github.com/ASU-SDSL/coconut-fsw**)** *2022-2025*

- ❖ Volunteered as the lead software developer for the satellite's firmware team at the ASU Interplanetary Initiative
- ❖ Wrote honors thesis on simulating and fuzzing the flight software, found 5+ potentially mission-ending bugs

Education

Arizona State University, Ira. A Fulton & Barrett Honors College • Tempe, AZ *2021 - 2025 (Current Senior)*

- ❖ BS Computer Science, Dean's List, 3.88 GPA
- ❖ Extracurriculars: • **Researcher** @ SEFCOM Security Lab • **Officer** @ ASU Hacking Club • **Member** @ Shellphish Hacking Team • **Software Lead** @ Sun Devil Satellite Laboratory • **Member** @ Hacker Devils

Achievements

Flinn Scholar 1/20 students selected from nearly 1000 applicants to receive a prestigious full-ride scholarship

Seal of Biliteracy Recognized fluency in Spanish through difficult standardized language & culture assessments

Study Abroad Summer 2023 Participated in international literature program in Switzerland, Germany, and France

Pwn2Own 2023 Toronto WyzeCam Winner (1 vuln, w/ SEFCOM), Vancouver Tesla Model S Entrant (11 vulns, solo)

Skills

Languages C • C++ • Python • Rust • Assembly (x86/ARM/MIPS/PPC/etc) • Go • Java

Technologies QEMU • glibc • Linux Kernel • AFL • LLVM • libFuzzer • syzkaller RTOS • Unicorn • Capstone

Data Management PostgreSQL • SQLite • MongoDB • BigQuery • REST • Looker • IPC • Protobuf

Miscellaneous Docker • IDA Pro • Ghidra • gdb • Git • GitHub • Kubernetes • vim • Software Exploitation