Rune Featherston

feathear@mail.uc.edu| (513)-658-5020 | DoD T.S. Security Clearance

Education

University of Cincinnati – B.S. in Computer Engineering Expected Graduation: Apr 2027

Skills

Languages: Verilog, C, C++, Python, RISC Assembly, HTML, CSS, JavaScript, Bash
Hardware: Software-Defined Radios, STM32, Arduino, FPGA, Oscilloscope, Signal Analysers
Software: KiCAD, Xpedition, PSpice, Altium, Multisim, MATLAB, Linux

Experience

Visiting Research Student, National Taipei University of Technology Jan – May 2025

- Conducted multi-modal analysis of flexible organic RRAM devices for neuromorphic computing applications
- Automated electrical testing pipelines for I–V sweeps, synaptic behavior (STD, LTP, STDP), and endurance measurements
- Collaborated in a Mandarin-speaking research lab, developing cross-cultural communication in a technical setting

Embedded Hardware Engineering Intern, Northrop Grumman – Xetron May – August 2024

- Designed and developed hardware for FAA communications equipment, including schematic and layout work with Xpedition; identified and resolved key grounding issues and implemented a modified STAR grounding setup to reduce noise by 5 dB in audio lines.
- Assembled and tested 14 RF Test boxes for the Wedgetail-E7, working with RF amplifiers and field sensors; utilized impedance matching techniques and a spectrum analyzer to optimize performance.

Cyber Software Engineering Intern, Northrop Grumman – Xetron August – December 2023

- Developed and implemented two offensive cyber capabilities to enhance the toolset for securing and accessing seven target devices, for usage by the U.S. Navy Fleet Cyber Command.
- Optimized memory management in constrained environments by developing capabilities in MIPS and PowerPC assembly, overcoming low memory challenges.
- Conducted in-depth reverse engineering and vulnerability analysis on target binaries using Ghidra, complemented by tools like objdump, strings, and hexedit contributing to the identification of potential security exploits.
- Configured and managed test networks, including IP routing, containerization, and subnetting, to ensure comprehensive testing and validation.

Research Assistant, Patek Analytics – Milford, OH April – August 2022

- Tested online market research surveys for logical flow and programming errors via Sawtooth Software.

Projects

Security-Focused Network Fuzzer (2nd Place, Security Track, MakeUC 2024)

- Engineered a mutation-based network fuzzer using a genetic algorithm to discover buffer overflow vulnerabilities in an HTTP server, demonstrating a novel approach to vulnerability testing.
- Constructed a two-container setup for payload generation and testing, simulating controlled and uncontrolled server crashes to showcase fuzzing effectiveness and network security insights.
- Utilized Python, C, Linux, Docker, & Scapy to implement and test, gaining expertise in cybersecurity techniques.

Awards & Fellowships

NSF IRES (International Research Experience for Students) Grant

- Selected by PI to join 2025 cohort for continued research in Taiwan *(offer accepted, pending deployment)*

Huayu Enrichment Scholarship, Taiwan Ministry of Education