

Rowan Hart

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<https://github.com/novafacing>

Experience

- **Intel Corporation** **September 2022 - Present**
 - Developed and open-sourced TSFFS, a fuzzer for the SIMICS full system simulator for securing UEFI and Kernel
 - Enabled fuzzing of Windows kernel drivers using Kernel Fuzzer for Xen
 - Software architecture and cryptography review of upcoming technologies
 - Collaborated with teams across business units to enable fuzzing firmware and drivers on all platforms
- **Research Innovations Incorporated** **August 2020 - August 2022**
 - Vulnerability research of large software projects across server, embedded, and mobile environments using AFL++ and Jazzer alongside manual and symbolic techniques
 - Developed diverse Binary Ninja plugins to assist vulnerability research integrating symbolic execution with Z3
 - Experimental applications of AI including transformers and reinforcement learning in vulnerability research
 - Developed automated tools leveraging angr to perform analysis of firmware
- **Purdue University Undergraduate & Graduate Research Assistant** **January 2020 - December 2022**
 - Developed automated binary patching tools to improve coverage of closed-box binary fuzzing using angr
 - Developed automated exploit rehosting tools using the angr symbolic execution framework
- **Purdue University Undergraduate & Graduate Teaching Assistant** **August 2019 - May 2021**
 - Wrote and maintained the standard linting tool for C programming courses using LLVM and clang-tidy
 - Taught and assisted students with C, systems programming, operating systems development, and gdb debugging
 - Developed project specifications and handouts, project and solution source code, and automated test cases
- **Northrop Grumman Xetron** **May 2018 - August 2020**
 - Reverse engineering of operating system internals and Windows applications, developed C/C++/Python projects
 - Developed an IDA Pro plugin for control flow analysis and path emulation for vulnerability research
 - Hosted a Capture The Flag competition, created infrastructure and reverse engineering challenges
 - Extended a binary comparison tool with additional functionality for metric acquisition in C++ and python
- **Purdue University b01lers Capture The Flag Team - Vice President** **August 2017 - December 2021**
 - Coordinated, hosted, and developed challenges for multiple public CTF competitions with over 600 scoring teams
 - Coordinated and created training curriculum development and learning Capture the Flag events to further the skills of team members
 - Solved Challenges in reverse engineering, binary exploitation, programming, web exploitation, and cryptography

Education

Purdue University, West Lafayette IN

Master of Science in Computer Science, GPA 3.66/4.0

December 2022

Bachelor of Science in Computer Science, GPA 3.55/4.0

December 2020

Technical Skills

- Programming Languages: Rust, Python, C/C++, Java, Typescript, Shell
- Open Source Contributions: AFLplusplus/LibAFL, intel/tsffs, angr/angr, trailofbits/maat, rust-lang/rust
- Compilers: LLVM compiler for MiniC, LLVM instrumentation passes, Clang-Tidy Check development
- Reverse Engineering: Reversing large systems and plugin development with Binary Ninja, Ghidra, and IDA Pro
- Kernel Development: Linux Windows and XINU kernel & kernel module development
- DevOps: Linux, Windows, MacOS system administration, Docker, GitHub actions

Awards, Publications, & Talks

- **Intel Security Leadership Award** for Fuzzing the Unfuzzable **June 2024**
- **Intel Corporation Division Recognition Award** for Project Mercury **May 2024**
- **BSides PDX (Talk):** This Chip Does Not Exist: Pre-Silicon Fuzzing **October 2023**
- **Intel Corporation Division Recognition Award** for Securing Intel Developer Cloud **September 2023**
- **Intel Corporation Division Recognition Award** for CONFUSE: Shift-left fuzzing at Intel **June 2023**
- **ACM SIGCSE Technical Symposium (Paper & Talk)** **March 2023**
 - Eastwood-Tidy: C Linting For Automated Code Style Assessment in Programming Courses
- **Masters Thesis (Paper)** **December 2022**
 - Fuzzing Deeper Logic With Impeding Function Transformation
- **1st, 5th, 8th Place TAMUCTF** **March 2020, 2021, 2022**