András Gémes

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Summary

Embedded software engineer with 6 years of experience and a deep interest in cybersecurity, specifically in malware analysis. Certified in Sec+, CEH, IMBT and PMAT with hands-on experience in malware reverse engineering. Looking to apply my technical expertise and security skills in a focused malware analyst role.

Work experience

Rust Embedded Software Engineer **Feb 2023 – Present**

HighTec EDV-Systeme GmbH - Budapest, Hungary

- Developing Rust and assembly tests for the Rust compiler, contributing to its ISO 26262 qualification process
- Implementing inline assembly features in the Rust compiler frontend
- Hardening the toolchain binaries against reverse engineering
- Creating customer-facing C and Rust examples for real-time operating system (RTOS) and bare-metal environments

Embedded Software Engineer **May 2018 – Jan 2023**

Knorr-Bremse - Budapest, Hungary

- Integrated Advanced Driver Assistance Systems (ADAS) software across various Electronic Control Units (ECUs)
- Configured, automated and evaluated Static Application Security Testing (SAST) using PC-lint and Clang-Tidy tools
- Debugged and analyzed software issues at the assembly level
- Configured memory, real-time operating system (RTOS) and Controller Area Network (CAN) software modules

Skills

Languages: C, Rust, Python 3, Assembly (AMD64/x86-64, ARM64/AArch64), Bash

Malware analysis (static): Ghidra, IDA, capa, YARA, DIE, dnSpy, readelf, objdump

Malware analysis (dynamic): x64dbg, VirtualBox, Wireshark, Sysinternals, Regshot, Frida, GDB, eBPF, strace

Platforms and DevOps tools: Linux (Fedora, Ubuntu), Windows, Git, Docker, GitHub Actions, Jenkins

Embedded systems and protocols: STM32, ESP32, AURIX, Wi-Fi, CAN, SPI, UART, I2C

Certifications

Fundamental cybersecurity: CompTIA Security+, EC-Council CEH

Malware analysis: Invoke RE IMBT, TCM Security PMAT

Relevant projects

- Ghidra: my custom Ghidra with enhanced features which I also submit to upstream
- shadow-shell: a cyber lab for shellcode analysis, built in Assembly and C
- sys-stalker: eBPF tools in Rust and Python for dynamically analyzing malware

Education

MSc in Mechatronics Engineering **Feb 2016 – June 2018**

Budapest University of Technology and Economics - Budapest, Hungary

- Master's thesis: Design and development of a solar energy utilization system

BSc in Mechatronics Engineering **Sept 2012 – Jan 2016**

University of Pannonia - Veszprém, Hungary

- Thesis: Design and development of a multicopter-carried river sampling device