Charles Engler

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Computer Science student specializing in cybersecurity and systems programming with hands-on experience in Linux kernel development, binary exploitation, and embedded systems. Strong academic performance and proven leadership as President of Phi Kappa Theta fraternity.

EDUCATION

WPI, Worcester MA - Computer Science Major with a Cybersecurity focus (2022 - Anticipated 2026)

Classes: Software Security Engineering (CS 4401), Operating Systems (CS 3013), Software Engineering (CS 3733), Analysis of Algorithms (CS 4120), Embedded Computing (ECE 2049)

Performance: 3.84 GPA, Dean's List

SKILLS AND PROFICIENCIES

Programming: C, x86_64 and ARM Assembly, JavaScript, ReactJS, Python, HTML, CSS, C#, PHP, Java

Technologies: Linux (kernel and user space), QEMU, Embedded Systems, Relational and Document Databases, AI

Competencies: Cybersecurity Defense and Attack Techniques, Executive Collaboration, Time Management, Problem Solving, Communication, Critical Thinking, Forklift Certified

PROJECT EXPERIENCE

Secure Malloc Major Qualifying Project (2025-2026)

- Refining memory bounce allocator for use on the Linux kernel
- Developing Linux kernel module compatible with a Google Pixel phone for bounce allocation
- Interfacing with novel Memory Tagging Extension (MTE) hardware on a Google Pixel phone
- Testing kernel code in QEMU for code coverage and test completion
- Producing stable, kernel-ready code for potential adoption on future Android phones with MTE support

Software Security Engineering (2025)

- Understood stack-based, format string, and heap-based buffer overflow attacks
- Exploited security features, such as canaries, NX stack, PIE, ASLR, and RELRO
- Attacked binaries and servers running binaries to obtain a shell
- Explored advanced binary exploitation with consideration of low-level optimizations and features

Operating Systems Projects (2025)

- Produced multithreaded CPU raytracer with 20x efficiency compared to single threaded
- Parallelized physics, rendering, and file saving
- Implemented semaphores, barriers, and critical region management to optimize code execution
- Developed virtual memory paging simulation with complete test coverage
- Simulated page tables in a 64 byte address space with 128 bytes of virtual memory
- Handled multiple processes with separate pages and page tables
- Swapped pages and page tables between physical memory and swap files

Interactive Qualifying Project (2024)

- Collaborated with a team of four other students
- Analyzed barriers to obstructive sleep apnea diagnosis and awareness
- Adapted to a work and study environment separate from Computer Science
- Spearheaded a proposal for an awareness campaign to be run by healthcare professionals

WORK EXPERIENCE

The Home Depot, North Hampton, NH June 2022 - Present

Sales Associate, Freight and Receiving Team Member

Timberlane School District, Plaistow, NH July 2022 - August 2022

IT Assistant

- Assisted staff with day-to-day technology needs, including device setup, imaging, and account access
- Helped maintain computer labs and classroom equipment, ensuring readiness for school year
- Supported IT staff in inventory and documentation of school technology resources

ORGANIZATIONS

- Phi Kappa Theta Fraternity: President 2025, Vice President of Finance and Risk 2024
- WPI Cybersecurity Club: Treasurer