First Last

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Education

Jawn University   Philadelphia, PA   Aug 2020 - May 2024

- Bachelor of Science in Computer Science • GPA: 3.93

Skills

Programming Languages: C, C++, Python, Javascript, x86 ASM
Other: Linux, Git/Github, Tmux, (Neo)vim, Ghidra, GDB (GNU Debugger), Binary Exploitation, Basic Reverse Engineering, Wireshark, Pwntools, Nmap

Experience

Princeton Plasma Physics Lab Intern   Princeton, NJ   Oct 2019 - Dec 2019

- Designed circuitry for a Langmuir probe, a device used to measure plasma properties like density and temperature

Projects

MITRE Embedded Security Challenge   (C, AES, AVR)

- Designed a custom bootloader for an Atmega microcontroller with AES-CBC encryption and HMAC verification

- Attacked bootloaders from other teams by dumping flash via JTAG after finding out that fuse bits were incorrectly setup.

TI-Authenticator: 2-Factor Authentication With a Calculator   (C, HMAC, SHA1, OTP)

- Produced the first calculator app to provide rolling passcodes similar to Google Authenticator and Duo on a TI-84+ CE graphing calculator to enhanced login security via 2-Factor Authentication

- Implemented the two types of One-Time Password (OTP) algorithms from scratch based on the RFC 4226 and RFC 6238 specifications based on a custom implementation of the HMAC algorithm (for learning purposes)

Personal Blog and Capture the Flag (CTF) Security Challenge Writeups

- Described the process of reversing using Ghidra (reverse engineering tool), bypassing exploitation mitigation techniques like NX (Non-executable stack) & ASLR (Address space layout randomization), and leveraging Return Oriented Programming (ROP) to exploit a binary.

- Wrote a writeup on utilizing a tape-drive, emoji based assembly language to implement subtraction and xor from scratch with bitwise operators.

Revere Engineering Malware Lab

- Learned reverse engineering techniques for reversing malware using Malware Unicorn's free, online reverse engineering workshops (Triage Analysis, Static Analysis, and Dynamic Analysis)

Awards/Activities

CTF (Capture the Flag Computer Security Competitions):

- 1st at castorsCTF20 (out of 500) ● 2nd at OwlHacks RSM CTF ● 4th at MetaCTF 2020 (out of 1017) ● 4th at RACTF 2020 (out of 1047)

- 25th at PicoCTF 2019 (out of 11722) ● 35th at TJCTF 2019 (out of 483) ● 13th at MITRECTF 2019 (out of 262)

Member: Random CTF Team (Top 100 Globally)   May 2019 - Present
Member: Jawn Hack-a-Hardware / Computer Security Club   Oct 2020 - Present