ANDREA ELIZABETH HOPKINS

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EDUCATION

University of Maryland, College Park, MD — Expected December 2018

B.S., Computer Science Major, Astronomy Minor, Family Science Concentration

TECHNICAL EXPERIENCE

Languages: C, Python, Java, Assembly (x86, x86-64, MIPS), JavaScript, HTML, CSS, SmallC, Prolog, OCaml, Ruby

Software: Wireshark, IDA Pro, Binary Ninja, WinDDK, WinDbg, GDB, Visual Studio, Eclipse, VMWare

Experience In: Windows system programming, network monitoring, software reverse engineering, kernel driver development, vulnerability research and exploitation, buffer overflows, shellcode injection, linear algebra and CTFs.

EMPLOYMENT

ManTech International Corporation *Hanover, MD* — June 2017 – August 2017

CNO Programmer

- Completed over 100 projects and labs to further my understanding of CNO Programming and Cybersecurity.
- Collaborated with interns and government employees on group projects, including a Python-based CTF, file snatching program, reverse engineering of software, and kernel driver development.
- Worked 50+ hours a week, in an intense lecture/lab based setting.

Discrete Structures and Mathematics Teaching Assistant *College Park, MD* — January 2017 – Present

- Developed a lesson plan for and led a discussion of 35+ students, teaching about number theory, induction, and more.
- Coordinated with instructors Jason Fillipou, Dr. William Gasarch, and Dr. Roger Eastman.
- Graded exams and materials, distributed quizzes, and held office hours.

Ballroom at Maryland – Team Captain, Vice President, Special Events Planner — December 2014 – December 2016

PROJECTS

Analyzation and exploitation of a vulnerable network service

- Used knowledge of Windows system programming, TCP Client/Servers, and CNO tool development to obtain files from a target computer that was protected by a Personal Security Product (PSP) through a vulnerable browser.
- Challenges consisted of shellcode injection, PIC packages, Windows hooking, and self-deleting executable mechanisms.

Duplicate File Identifier

- Used knowledge on MD5, as well as Windows system programming, to list all files of a directory, compare their hashes, and determine if there is a duplicate file. From there, delete the extra file.

Reverse Engineering of Cryptography and Intercepting Network Packages

- Honed reverse engineering skills by using IDA Pro (static) and WinDbg (dynamic) to reverse a browser that sent RC4 and MD5 encrypted scripts over a network. Intercepted the package, used the RC4 keys to decrypt and use the Python script.

NFA-DFA-Regexp Interpreter

- OCaml and SmallC; Implement a product that interprets strings just like a regular expression.

SmallC Lexer and Parser

- Capable of parsing expressions, statements, full programs, and could turn a text file into a running SmallC program.

Multi-Threaded Server

- Sharpened networks skills by implementing a multi-threaded server that could connect with multiple clients and cleanly handle parallel packet analysis.

CERTIFICATES

Mantech Certified Advanced Cyber Programmer (CACP)