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William Findlay

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Education

Bachelor of Computer Science — *Carleton University*
September 2015 - April 2020 — *Ottawa, ON*
Computer and Network Security Stream
Accelerated Masters Program
CGPA: 11.0 (A)

Work Experience

Undergraduate Researcher (Linux Kernel Security) — *Carleton University*
April 2019 - Present — *Ottawa, ON*

- Researching the viability of eBPF-based implementations for intrusion detection systems on the GNU/Linux operating system.
- Designed and implemented `ebpH`, an intrusion detection system that uses eBPF-based observability filters to establish regular process behavior and detect anomalous system call patterns
- Project is currently closed-source pending publication.

Teaching Assistant (COMP3000 Operating Systems) — *Carleton University*
September 2018 - Present — *Ottawa, ON*

- Nominee for the Outstanding Teaching Assistant Award
- Ran tutorial sessions for groups of 50 students.
- Took a leadership role to ensure tutorials proceeded smoothly.
- Held weekly office hours and workshops for students.
- Graded assignments and tests and gave appropriate feedback.
- Proctored exams for about 200 students.
- Assisted professor with development and delivery of course material.

Service Department Supervisor — *Metro Ontario, Inc.*
April 2014 - January 2018 — *Ottawa, ON*

- Managed day-to-day operations in the front end service department.
- In charge of store payroll and accounting on a part-time basis.
- Exhibited superior customer service skills as required.

Projects (See more on GitHub)

Raspberry Pi GPIO Pin Driver

- Wrote a character device driver Linux kernel module to act as a driver for GPIO pins on the Raspberry Pi.
- Module supported read and write operations to set active pins, read pin input, and write pin output.
- A full writeup on the module is available at https://wfindlay.com/assets/written/3000report.pdf

Asciify (ASCII Art Generator)

- Wrote an ASCII art generator CLI in Python3.
- Generator takes an image or GIF as input and produces ASCII art output.
- Full support for color and black and white ASCII art.
- Full support for ASCII animated GIFs.

Genetic Algorithm for Text Generation

- Wrote a genetic algorithm in C++ to generate a human-readable string from random data.

Languages

Programming
10,000 or more lines
C, C++, Python

5,000 - 10,000 lines
Java, Javascript

1,000 - 5,000 lines
Haskell, Prolog, Vimscript, R, Common Lisp

Markup
Markdown, Rmarkdown, LaTeX, HTML, CSS

Human
English, French

Technologies

Linux Kernel, eBPF, bcc, Qt, NodeJS, Git, Bash

Workflow

Operating System
GNU/Linux (Arch Linux)

Window Manager
i3wm

Terminal and Shell
Termite, Bash

Text Editor
Vim

Version Control
Git, GitHub

Technical Skills

- GNU/Linux kernel development
- Low-level C development
- C++ development
- Python scripting
- Statistical analysis in Python (pandas, numpy, scipy) and R
- Documentation in LaTeX

General Skills

- Team leader
- Dedicated
- Goal-oriented

Extracurricular

- Avid Linux user
- Free software enthusiast
- Computer builder
- Study group leader for friends and peers