Zack McKevitt

zack.mckevitt@gmail.com | 303-887-9827 | zackmckevitt.com

OBJECTIVE

Masters computer science student with research background in hardware security looking for research and development experience in computer systems and security, specifically in the domains of operating systems, networks, and computer architecture.

CORE SKILLS

C/C++	Python	Linux/Bash	x86 Assembly	LaTeX

EDUCATION

University of Colorado Boulder — Boulder, CO
MS: Computer Science — GPA: 4.0/4.0 — May, 2023
BS: Computer Science, minor: Philosophy — GPA: 3.97/4.0 — May, 2022
    Summa Cum Laude

WORK EXPERIENCE

VMware — Bellevue, WA
Intern Member of Technical Staff - Monitor Team — May, 2022 − Aug, 2022
- Member of the Virutal Machine Monitor (VMM) team to aid in the development of the ESX hypervisor.
- Helped develop the Green Metrics (GM) platform to determine the power consumption of an individual guest OS.
- Responsible for supplementing the existing GM model to include GPU device power readings.
- Wrote various extensions to the ESX hypervisor in both user space and kernel space in C and C++.

University of Colorado Boulder — Boulder, CO
Researcher, ECEE Department — Aug, 2020 − present
- Lead researcher on project focused on detecting transient execution vulnerabilities in software.
- Tasked with presenting research findings to my team on a weekly basis.
- Selected as outstanding presentation to present live at the 2021 CU Boulder Undergraduate Research Symposium.
- Presented peer reviewed, work in progress research during HASP workshop at MICRO '21.
- Recipient of both the Discovery Learning Award and Active Learning Award upon the completion of my BS for my work.
- Full paper submitted to IEEE SEED 22 for peer review.

University of Colorado Boulder — Boulder, CO
Grader, ECEN 3593/CSCI 4593 - Computer Organization — Aug, 2021 − Dec, 2021
- Grader for lab-based, upper division course in computer architecture.
- Labs include writing processor pipeline code as well as drawing pipeline schematics in microarchitectural detail.
- Frequently looked through and helped debug students' code.

Yes Energy — Boulder,CO
Database Operations Intern — May, 2020 − Aug, 2020
- Automated process of updating a Google calendar when database is updated.
- Frequently wrote Python scripts to manipulate database information.
- Performed time series analysis on power market data with Python.

PROJECT WORK

Deep Learning Techniques for Automatic Transient Execution Attack Detection
Research Project — Aug, 2020 − present
- Implementing an binary classification model using Recurrent Neural Networks (RNNs) to detect vulnerable Spectre attack patterns in software.
- This platform analyzes instruction sequences and microarchitectural state information in combination to determine presence of a spectre vulnerability.
- Model a program's execution as a sequential learning problem and provide the RNN with various Spectre variants as training inputs.
- This project has been the focus of both my Bachelors and Masters theses.

HTTP Server in Rust *Personal Project*   July 2022
- Simple HTTP server written to learn the basics of the Rust programming language.
- Able to serve GET requests directly from the browser.
- Can transmit various filetypes such as HTML, CSS, images, and javascript.
- Multithreaded to handle multiple simultaneous TCP connections.
- Work in progress Github for this project: https://github.com/zmckevitt/http_rust

Distributed File System *CSCI 5273 - Graduate Network Systems*   Dec, 2021
- Implemented a distributed file system in C using sockets.
- Comprised of 4 servers and allowed clients to get/retrieve files, print the current file system, and create subdirectories.
- Supported user authentication, end to end encryption, and file redundancy in case of a server crash.
- Strong emphasis on software engineering principles (makefile, documentation, file structure, etc.)
- Github for this project: https://github.com/zmckevitt/Distributed-File-System

Multithreaded DNS Resolver *CSCI 3573 - Operating Systems*   Mar, 2021
- Implemented a thread safe, multithreaded application to resolve DNS queries in C.
- Built thread safe queue with multiple producers and consumers pushing and pulling from the queue.
- Used mutex locks and condition variables to build data structures safe from race conditions.

Clubs and Societies
Tau Beta Pi: Member of the Tau Beta Pi engineering honor society.   initiated Spring 2020
HackCU: Participant in CU's yearly hackathon HackCU.   participated March 2021
Boulder Freeride: Member of the Boulder Freeride club at CU.   joined Fall 2018