Jiuzhou Hao

Personal Info

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Github
https://github.com/PacificViking

Education

Year 2, pursuing **Bachelor's Degree: Computer Engineering**, University of Toronto (St George). Graduating 2027.

Skills

Python | Python Libraries | Rust | C++ | HTML/CSS | Javascript | SQL | Git | Bash | NodeJS | Linux/Unix | Networking | Server Administration | Data Structures/Algorithms | Nix/NixOS | Make

Interests

Programming | Open Source | Philosophy | Economics | Technology | Infosec | Software Design

Participation

- Certificate Cutoff: Canadian Computing Competition, Senior
- Certificate Cutoff: Waterloo CEMC Euclid Competition
- Advent of Code 2021-2024
- Hack the Valley 8
- University of Toronto Engineering Kompetition 2025
- UoftCTF 2025

Projects

A personal censorship circumvention proxy

Key Achievements
- Researched academic papers on firewall mechanisms and alternate circumvention proxies to inspire
- Implemented and modified implementation of network protocols to hide network traffic
- Optimized proxy throughput by interfacing with low level systems and multi-level caching
- Administrated remote AWS server maintaining security against randomized attacks

Results
- Relatively fast (1.6MB/s), stable network traffic from China to firewalled domains/addresses compared to other proxies (which require avid disconnection to avoid suspicion flagging)
- Consistently used over a year without connection loss

Multi-peer airdrop-like file transfer

Key Achievements
- Used base64 stdio to interface my language of choice (Python) with the Multipeer-connectivity API (swift)
- Researched badly-documented and niche multipeer API
- Maintained application-like user experience on a web-based app despite Apple's trust constraints using hidden-window workarounds
- Synchronized state between asynchronously joining and leaving peers using nonblocking file IO, abstracted communication protocols, and API command line interfaces

Results
- Was not widely adopted, but was seldom used in my classes

Other Projects

- A fairy chess engine
- A few digital games with python/pygame
- Automatic renamer and pdf-compiler for documents taken with photo booth on MacOS during e-learning
- Imageboard crawler
- Decision tree based wordle solver
- Data denoising preprocessor and trend finder (for noisy sinusoidal data with exponentially decaying amplitude)
- Using/configuring Linux (NixOS) as a daily driver
- Budgeting app for Hackathon
- SMS receiver and web server for remote SIM card
- HTTP chat server with file uploading and chatrooms
- Code for this resume template
- Offline map software with pathfinding functionality

Open Source Contributions

- Adding, updating NixOS packages
- Increasing ease of packaging for Hyprprop: xprop for Hyprland
- Backend for GuessTheLocation: location guessing game
- Fixing Paxmod: multi-tiered tab addon for updated Firefox version
- Adding user-facing API functionality for ignis: GTK based widget framework

Work History

2020-11 - 2021-03; 2021-11 - 2022-03

Head of Sounds and Lights

We Will Rock You (Musical) / FAME (Musical)

Key Qualifications and Responsibilities
- Learning stage light positioning and control using manual
- Organizing microphone distribution to actors
- Working with music and stage director to understand needs

Key Achievements
- Modified stage lights at calculated angles for full, omnidirectional lighting for the musical
- Multiple creative ideas, including using TTS for a robotic announcer, making dark blue scenes more visible using specks of bright light
- Found and used undiscovered features in the control panel, including fixture groups, automatic shapes, and keyframing

2019-11 - 2023-03

Writer/Web Developer/Server Management

Unofficial School Blog

Key Qualifications and Responsibilities
- Developing and maintaining an unofficial online blog for my high school
- Writing entertaining content for the blog. This involved programming skills for interactively entertaining webpages, and image editing skills for content creation

Key Achievements
- Blog had 200 views per week at its peak during COVID periods

2024-06 - 2024-09

Software Developer

A5 Project: Developing a Python Interpreter in Rust
Research project under Prof. Ding Yuan, University of Toronto

Key Qualifications and Responsibilities
- Communicated effectively with already-established project group to find out areas of potential contribution
- Researched Python interpreter control flow using knowledge in the language, and finding correlations with code in Rust to understand available functions
- Wrote several interal object representation files and added to functionality of several others
- Wrote tests for my contributions as well as test cases for milestone

Key Achievements
- Several previously unrunnable programs are able to run