Minh Tran

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Experience

Software Engineer Intern January 2023 – May 2023

Cisco Systems Canada *Remote*

- Developed a multi-threaded **Python microservice** for a Cisco internal SaaS ingesting usage telemetry data of Cisco Cat9kv switches from thousands of GNS3 networking projects to be stored in **ElasticSearch**.
- Containerized and integrated **ElasticSearch** and **Kibana** into existing microservices system.
- Created insightful **Kibana** charts highlighting Cat9kv switch flavors daily usage and number of daily users to present to Cisco Enterprise Networking Group executives.
- Wrote custom **Ansible** modules to synchronize folders across Cisco managed servers while ensuring 100% folder structure and files integrity with hashing algorithm utilizing **Python SHA1 crytographic library**.
- Automated custom **Ansible** modules testing with **Bash** scripts. Testing environment made with **Vagrant** and **Docker** to simulate production servers.

Projects

Todo API | *Python, Quart, Pydantic, PostgreSQL* Sept 2022

- Developed a **REST API** for **CRUD** operations of user accounts and todo items with **Quart** web framework.
- Implemented authentication with **Cookies**.
- Applied concepts like rate-limiting, password-length checking, expired tokens checking with libraries such as quart-rate-limiter, zxcvbn, freezegun.
- Containerized with **Docker** and **Docker-Compose** for easy deployment and testing.
- Improved test coverage for API using **Pytest**.
- Adopted **Github Actions** for continuous integration. Code is linted, formatted and tested.

MyFTP | *Python, Docker, GNU Make* Sept 2023 – Dec 2023

- Developed a **Python**-based FTP client-server supporting both **TCP** and **UDP** protocols.
- Employed **bitwise** and **bytewise** operations to assemble custom request and response payloads for seamless communication between the FTP client and server.
- Implemented **Regex** pattern matching to match user commands to send and receive files to/from the FTP server and to change file names on the server.
- Utilized **Docker** and **Docker Compose** to establish two containers (FTP client and server) on the same network. This approach created a testing environment closely resembling production, enhancing the reliability and robustness of the project.

Epore | *Rust* July 2024

- Developed a program for asynchronous **TCP** communication using **Linux's epoll event queue** to efficiently handle hundreds of TCP connections.
- Leveraged Rust's **Foreign Function Interface (FFI)** and unsafe directives to directly manage **Linux's ABI system calls in C**, achieving efficient I/O handling and enhanced performance.

OS Memory Manager | *Python, Python-Poetry* Jan 2021 – May 2021

- Created a **OS memory manager** simulation that handles **page faults**.
- Avoided **deadlocks** and achieved **concurrency** between threads via **mutexes** and **semaphores**.
- Implemented the **LRU-K (least recently used)** algorithm to swap out OS system pages that are not in use by the OS.

Technical Skills

Languages: Python, Java, C++, C, Rust, Javascript, Typescript, HTML, CSS, SQL
Frameworks: Flask, Node.js, FastAPI, Django, Express
Tools: Git, Docker, Ansible, Kibana, Vagrant, IntelliJ, Emacs, Vim, Postman, Insomnia, LaTex, K8s, Bash
Databases: PostgreSQL, MySQL, MongoDB, ElasticSearch, etcd, Firestore

Education

Concordia University Montreal, QC

Bachelor of Engineering in Computer Engineering. *Sept. 2019 – December 2025 (expected)*