

INES QIAN

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EXPERIENCE

GPU Optimization Engineer (Capstone Student)

PRE

📅 Sep 2024 – Current 📍 Toronto, CA

- Worked on optimizing a GenAI model that simulates shoppers' behaviour on e-commerce sites/apps.
- Implemented GPU optimization techniques, including the development of **custom kernel functions** and **parallelism** strategies. Enhanced processing speed and efficiency by **40x**.

Software Engineering Intern

Red Hat - Openshift Machine Config Operator Team

📅 May 2023 – Aug 2024 📍 Toronto, CA

- Worked on improving the **Openshift Machine Config Operator** that helps with configuring operating system features on OpenShift Container Platform nodes.
- Led the implementation of enhancing the **metrics and status reporting system** of the operator.
 - Designed and implemented a new **sub-controller pod** that serves as the center for collecting **Prometheus metrics** and **machine state** changes through **API calls, eventing, K8s services and routes**.
 - Brought in various new pool health indicators and sub-controller progression reports to improve action and error tracking.
 - Related work will land in **Openshift 4.15 and 4.16 release**, and will help various customers, including **Adobe**, and system admins to better monitor their clusters.
- Support the operator's future way to perform machine OS update - configure the OS by **building and deploying Open Container Initiative Images on the cluster**, integrating data from multiple sources.
 - Led the design and implementation of two new **APIs** that provide finer-grained control by allowing a per-pool configuration instead of the old per-cluster configuration. It also requires less manual setup of configuration files resulting in a reduction of human error.
 - Included a graceful **failure recovery plan** for failed builds, which prevents interruption and gives the user a smoother experience.
 - Developed and maintained the **unit test and e2e test suites** for new features brought in.

Undergraduate Research Assistant

Sick Kids & N2B Laboratory at the Krembil Research Institute

📅 Apr 2021 – Apr 2023 📍 Toronto, CA

- Carrying out **parameter tuning and training** on the computational model of a human L5 cortical pyramidal cell, developed by Dr. Scott Rich in 2020, to study the impact of changes in h-channel properties on neuron's dynamics, and their potential contributions to epilepsy and seizure, using **NEURON**, and **Python**.
- Set up a **Ubuntu Virtual Machine** via **Oracle VM Virtual Box** to provide the Linux system environment for the in-silico experiment.
- Collecting neuron voltage data from in-silico experiments and writing **Python** and **MATLAB** scripts to perform data analysis.

EDUCATION

Bachelor of Applied Science - Computer Engineering

University of Toronto

📅 Sep. 2020 – Present CGPA:3.74/4.0

SKILLS

C/C++ Python Java Go

HTML, CSS, ReactJS SQL

k8s Docker Openshift AWS

Ubuntu CoreOS RHEL

Pytorch Keras TensorFlow

Git CI/CD Jira

VOLUNTEER WORK

- University of Toronto Cyber-security Student Association - Content Lead
- Volunteer Engineering Experience Program - Full Stack Developer

PROJECT

- **UMap (Software Development, GIS)**
 - Developed the **front-end, back-end and unit-testing** of a **GIS system** targeted towards university students.
 - Implemented new **APIs** to access data from a larger than 1 GB database and applied various **STL data structures** for optimization.
 - Used **EZGL library** to design a usable and responsive user interface.
- **Smiling Machine (Image Generation, Deep Learning)**
 - Developed a **conditional deep convolutional generative adversarial network (cDCGAN)** to generate smiling face images and showcased the result with **Tensorboard**.
 - Generated reports on analyzing the **difficulty in GAN training**, and received a mark of **90** under evaluation

ACHIEVEMENTS

- Dean's Honour List - 2020-2023