

RISHABH SAINI

✉ rishabh.saini@mail.utoronto.ca 🌐 RishabhSaini in rishabh-saini ☎ +16476762904 📁 Portfolio

EDUCATION

University Of Toronto

Sept. 2019 - May 2024

Bachelor of Applied Science in Computer Engineering

Toronto, ON

- Minor in Artificial Intelligence and Engineering Business
- Dean's List Scholar
- Speaker at DevConf.cz open source conference 2023

Courses: Software Design, Data Structures and Algorithms, Operating Systems, Machine Learning

SKILLS

Languages: C/C++, Rust, Go, Python, JavaScript, Java, GIT, SQL, Assembly, Verilog, Solidity, Unix Shell

Frameworks: React, Node, Flask, MongoDB, Pandas, Scikit, Docker, Podman, GCP, OpenCV, PyTorch, Kubernetes

Soft Skills: Leadership, Collaboration, Critical Thinking, Open Minded, Self-Motivated

EXPERIENCE

Software Engineering Intern

May 2022 - August 2023

Red Hat

Toronto, ON

- Top 2 contributor to the open-source projects of OSTree and rpm-ostree which together form the upgrade system for the RHEL CoreOS (default OS of **OpenShift Container Platform**) written in **C++** and **Rust**
- Spearheaded a requested enhancement for OpenShift customers by optimizing the packing structure of the OS container image, resulting in a 39% reduction in redundant data downloaded during OS upgrades. This improvement positively impacted 73,000 nodes globally.
- Enabled container image signing and verification for all ostree-based operating systems (Fedora Kionite, Silverblue, CoreOS) by making contributions in **Go** to skopeo and containers/image

Cosmic Explosions Analyst

Sept. 2021 - May 2022

David A. Dunlap Department of Astronomy and Astrophysics

Toronto, ON

- Developed the web framework using **Flask** to manage the computationally expensive analysis that run in very low latency in response to Gamma-Ray Bursts captured by NASA Neil Gehrels Swift Observatory

Research Intern

May 2021 - Sept 2021

Intelligent Sensory Microsystems Laboratory

Toronto, ON

- Pioneered an ensemble meta-algorithm to tackle the reduction in inference accuracy of memristor-based **neural network**.
- Utilized **PyTorch** to simulate the vector-matrix multiplication operation of neural networks and the non-idealities of memristive crossbars

EMS Software Engineer Intern

June 2021 - August 2021

BLiNQ Networks

Toronto, ON

- Simulated the management plane load of NETLINQ EMS by deploying 1000 eNodeB's (LTE base stations) in **Docker** containers and managing it by using **Kubernetes** clusters on CentOS VMs
- Transformed the eNodeB simulator from the thread concurrency model to the actor model using the **Java Akka** framework. Supported RFC 8040 (HTTP based REST like protocol) for accessing YANG data modules

Full Stack Web Development Intern

June 2020 - Sept. 2020

Braintoy

Calgary, AB

- Developed and presented a CRM software for a S&P500 client by using **PolymerJS** and **Flask**
- Created REST APIs in **Python** to query the **SQL** database consisting of 15,000+ customers and 17,000+ products
- Optimized server query response time to 45ms by restructuring API calls and utilizing efficient algorithms

Development Team Lead

Sept. 2020 - Sept. 2021

NeuroTechX

Toronto, ON

- Led the development of an EEG headset controlled keyboard using **React** with **Redux** and **WebSockets**
- Created project requirements, oversaw architecture, supported the team, and had integrations with other teams

PROJECTS

Bonfire Overall First Place in NSBE Hackathon 2021

- Developed a video chatting social media application to trade cultural values and skills. Used **Google Maps API** to visualize heat map of users. Applied **Machine Learning** to create a user recommendation algorithm.

GIS Kronos Uses OpenStreetMap database to help users explore over 20 popular regions in the world

- Designed the map using C++ GTK library and maintained using Valgrind. Implemented A* and simulated annealing algorithm to speed pathfinding by 50%.