Sean Kim

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Education

University of Toronto Expected: Jun 2026

Bachelor of Applied Science in Computer Engineering, Minor in Artificial Intelligence Toronto, Canada

- **cGPA: 3.86** / 4.0, Dean's List in All Semesters, NSERC Undergraduate Student Research Award (2023)
- **Relevant Coursework:** Algorithms and Data Structures, Computer Networks, Operating Systems, Software Design, Computer Organization, Databases, Deep Learning, Digital Systems, Control Systems, Probability
- **Teaching Assistant: ECE201H1** — Support seminar coordination for 350+ second-year ECE students

Experience

Mozilla Corporation May 2024 – Apr 2025

Software Engineer Intern (PEY) Toronto, Canada

- Integrated **Microsoft Entra** Single Sign-On (SSO) for **Firefox** on macOS using **Apple**'s Authorization API in Objective-C. On behalf of **Mozilla**, communicated and collaborated with **Microsoft** to validate broker requests and facilitate discussions regarding the syndiagnosis report and system logs
- Enhanced homoglyph attack detection for 50+ IDNs in C++, preventing malicious lookalike combinations
- Migrated 40+ networking Telemetry probes to Glean API and implemented SQL queries to visualize HTTP metrics on the dashboard monitored weekly by 10+ engineers, enabling diagnosis of performance on Android
- Implemented a clear HTTP cache feature for about:networking page by exposing the Console API in JavaScript, allowing performance diagnostics and testing for developers and over 200 million **Firefox** users
- Enhanced string parsing in C++ and Rust for 20+ URL schemes on **Firefox** (Interop 2024)

iQua Research Group – University of Toronto May 2023 – Aug 2023

Research Intern — Distributed Systems Toronto, Canada

- Developed a Max-min Fairness (FCFS) algorithm using SciPy and NetworkX (Python libraries), achieving up to 300% improvement in minimum flow bandwidth compared to network flows without the algorithm
- Created a dashboard for researchers with ReactJS (Web) and Python/psycopg2 (CLI) to track 1000+ bandwidths from highest to lowest by destination, link, and virtual circuit, queried from PostgreSQL DBMS

UofTHacks – Organizer Team Jul 2022 – Jan 2024

Software Engineer – Full Stack Web Remote

- Developed reusable NextJS components and backend endpoints in NodeJS for the website and applicant dashboard of the Canada's largest student-run hackathon, UofTHacks, benefiting over 1000+ applicants

Projects

OTFMap - C++ GIS Mapper | Demo Link C++ (STL), GTK, EZGL, OpenStreetMap API

- Developed a high-performance, multi-threaded GIS application using GTK, writing and refactoring 4300+ lines of codebase to adhere to modern C++ standards, capable of producing the shortest path in < 1 second
- Implemented Djikstra, A* algorithms, 3-Opt and other heuristics for Travelling Salesman/Courier Problems in 20 cities while maintaining 50-second runtime using C++ and OSM API, ranked within top 10% of the challenge

Handwritten Text Recognition using DL | Demo Link PyTorch, OpenCV, Matplotlib, Pandas

- Developed and trained a CNN + GRU model with PyTorch for text recognition on handwritten word images
- Enhanced model accuracy to 51.6% on the test set via Levenshtein distance (surpassed baseline model with 29%)

CareerTrace - Job Tracker | Demo Link ReactJS, ExpressJS, MongoDB, Google OAuth 2.0, AWS

- Developed a responsive web app that effortlessly track user's job applications, monitor application stages, and keep a record of important interview dates, built with MERN stack and Google OAuth 2.0, deployed with AWS

Skills

Languages: C, C++, Python, Java, SQL, HTML, CSS, JavaScript, Rust, Objective-C
Technologies: ReactJS, Redux, NextJS, NodeJS, ExpressJS, PostgreSQL, MySQL, PyTorch, Matplotlib, TensorFlow, Git, Mercurial, Linux, Unix, Docker, Vim, JUnit, Jupyter Notebook
Concepts: Frontend, Backend, Full Stack, Web Frameworks, Unit Testing, Deep Learning, Networking, Browsers