

Sean Kim

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Education

University of Toronto

Expected Graduation: Jun 2026

Bachelor of Applied Science in Computer Engineering (Software), Minor in Artificial Intelligence

cGPA: 3.86/4.0

- NSERC Undergraduate Student Research Award (2023) · Teaching Assistant (Fall 2024) · Dean's List in All Semesters
- **Relevant Coursework:** Algorithms and Data Structures, Operating Systems, Software Design, Computer Networks, Databases, Deep Learning, Computer Organization, Object Oriented Programming, Probability and Statistics

Experience

Patreon

May 2025 – Aug 2025

Software Engineering Intern

New York, NY


- Security Team

Mozilla Corporation (Firefox)

Jan 2025 – Apr 2025

Software Engineering Intern

Toronto, ON, Canada



- Extended **DNS over HTTPS (DoH) in Firefox for Android**  (Kotlin, Jetpack Compose, Redux-based architecture), integrating GeckoView API (via Java) to **deliver desktop-level privacy for over 178 million mobile users**
- Implemented WebTransport datagram send and receive support over HTTP/2 in C++, making Firefox the first browser to support HTTP/2 fallback and promote developers to build and test in Firefox
- Revamped networking error pages with refined messages alongside content team, bringing Firefox in line with competitors

Mozilla Corporation (Firefox)

May 2024 – Dec 2024

Software Engineering Intern

Toronto, ON, Canada

- Integrated **Microsoft Entra Single Sign-On** for Firefox on macOS  via Apple's Authorization API in Objective-C, potentially **benefiting 7+ million** users, and led **Mozilla** in cross-company discussion with **Microsoft**
- Enhanced the URL parsing layer (C++, JavaScript, Rust) for **25+ URL schemes and query encodings** in Firefox, elevating Firefox Nightly's **Interop 2024 URL score to 99.3%** , beating major market competitors
- Migrated **50+** networking Telemetry probes to Glean API and built a real-time dashboard on Redash, used weekly by **10+ engineers** to pinpoint the root cause of performance issues in Firefox Desktop and Android

iQua Research Group

May 2023 – Aug 2023

Distributed Systems Research Intern

Toronto, ON, Canada

- Devised a max-min fairness algorithm in Python using SciPy and NetworkX, **yielding up to a 300% increase** in minimum flow bandwidth over baseline flows and significantly enhancing resource allocation across the network
- Built a Node.js server to collect metrics (address, port, bandwidths) and a psycopg2-based CLI dashboard to rank **1,000+** connections from PostgreSQL, enabling coordinated communication across cloud nodes and benefiting research efforts

Projects & Extracurriculars

UofTHacks Organizer Team | [UofTHacks 10 and 11](#)

React.js · Next.js · Node.js · Express.js · MariaDB

- Developed reusable Next.js components utilizing styled-components for the main website, admin portal, and applicant dashboard of **Canada's largest student-run hackathon**, benefiting over **1,000** hackathon applicants
- Integrated MariaDB with Express.js backend and optimized query performance by refactoring inefficient SQL queries

Geographic Information System Mapper | [Demo Video](#)

C++ · STL · GTK · OpenStreetMap API

- Developed a high-performance, multi-threaded map application, producing the **shortest path in < 1 second**
- Implemented Dijkstra, A* algorithms, 3-Opt, and other heuristics for Travelling 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 Video](#)

PyTorch · OpenCV · Matplotlib · Pandas

- Trained a CNN + GRU with an accuracy of **51.6%** on unbiased test set via Levenshtein distance (baseline with 29%)

Skills

Languages: Python, C, C++, JavaScript, Java, Kotlin, Rust, HTML, CSS, SQL, Objective-C

Miscellaneous: Redux, React.js, Next.js, Node.js, Express.js, REST API, PostgreSQL, Redash, NoSQL, Jetpack Compose, Android Studio, Jira, PyTorch, Matplotlib, TensorFlow, STL, GoogleTest, JUnit, Git, Mercurial, Linux, Unix, Vim, Docker, AWS