Sean Kim

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EDUCATION

University of Toronto   Anticipated: May 2026
Bachelor of Applied Science in Computer Engineering, Double Minor in AI and Robotics   *Toronto, ON*
- **Cumulative GPA: 3.86** / 4.0
- **Honours:** NSERC Undergraduate Student Research Award (2023), Dean's List in All Semesters (2021 – 2024)
- **Coursework:** Algorithms and Data Structures, Operating Systems, Computer Networks, Software Design, Databases, Deep Learning, Computer Organization, Digital Systems, Control Systems, Probability and Statistics

EXPERIENCE

Software Engineer Intern   May 2024 – Present
Mozilla Corp.   *Toronto, ON*
- Leveraged **C++**, **JavaScript**, and **Rust** to develop features and maintain **30+ (In Progress)** bugs in the **networking** side of **Firefox**, including URL parsing (Interop), API migration, and SSO issues

Distributed ML Systems Research Intern   May 2023 – Sep 2023
iQua Research Group – University of Toronto   *Toronto, ON*
- Devised a Max-min fairness routing algorithm with **SciPy** linear programming and the **NetworkX** library, optimizing the lowest flow bandwidth by up to **300%**
- Leveraged **React.js** and **Python (psycopg2)** to create an analytics dashboard able to track bandwidth from highest to lowest by destination, link, and virtual circuit, displaying data queried from **PostgreSQL** DBMS
- Extended **10+** unit tests in **Rust** to analyze **TCP** connection and transmission via evaluating packets

Full Stack Web Engineer   Jul 2022 – Jan 2024
UofTHacks X and 11 – Organizer Team   *Toronto, ON (Remote)*
- Developed reusable **Next.js** components of the website and applicant dashboard for the **Canada's first student-run** hackathon, UofTHacks, benefiting over **600+** hackathon participants with seamless access
- Built **RESTful API** backend endpoints using **Express.js**, effectively handling application data

PROJECTS

OTFMap - C++ GIS Mapper | *C++ (STL), GTK, Glade, EZGL, OpenStreetMap API*   Demo Link
- Developed a functional GIS application built with **C++** (STL) and **OSM API**, along with a customized database
- Implemented **Parallel Djikstra**, **A*** algorithms, **3-Opt** and other heuristics for Travelling Courier Problem in **20** cities while maintaining **50-second** runtime, surpassing all TA algorithms and ranking within **top 10%** of class

CareerTrace - Job Tracker | *React.js, Node.js, Express.js, MongoDB, Google OAuth 2.0, AWS*   Demo Link
- Developed a responsive web app that effortlessly tracks user's job applications, monitors application stages, and keeps a record of interview dates, built with **MERN** stack and **Google OAuth 2.0**, deployed with **AWS**

Handwritten Text Recognition (CNN + GRU) | *PyTorch, OpenCV, Pandas, CNN + GRU*   Demo Link
- 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%)

Operating System Libraries - Thread & Process Manager | *C, Linux, Unix, Systems Programming*
- Implemented a user-space thread and process libraries in **C** features including terminating a thread, yielding a thread back to the queue, joining after thread's termination, monitoring processes, and serving as a subreaper
- Created a test case for **300+** students in ECE344H1 (Operating Systems), approved by the Course Instructor

TECHNICAL SKILLS

Languages: C, C++ (STL), Python, Java, SQL, HTML5, CSS3, JavaScript (ES6+), TypeScript (ES6+), Rust, ARM v7 Assembly, Verilog (HDL), MATLAB
Frameworks/Libraries/DBMS: React.js, Redux, Next.js, Node.js, Express.js, PostgreSQL, MySQL, NumPy, SciPy, psycopg2, PyTorch, Matplotlib, TensorFlow
Developer Tools: Git, Mercurial, Linux/Ubuntu, Unix, Docker, Vim, tmux, GTK/Glade, JUnit, Jupyter Notebook