Trevor Du

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Skills

Languages	C++, C, Rust, Python, SQL, HTML/CSS, TypeScript, JavaScript, Bash, GLSL
Technologies	Cloud Infrastructure, Networking, CI/CD, AI/ML, Databases, Backend, Graphics
Tools	AWS, Docker, Kubernetes, PostgreSQL, Redis, GoogleTest, React, Qt, OpenGL

Experience

Arup *May 2024 - Aug 2024*
Software Developer Intern (MassMotion) *Toronto, ON*

- Research and developed a suffix tree-based code completion model using C++ for the Python script editor, reducing input latency by 30% and enabling behaviour beyond what Qt facilities provide.
- Added fuzzy code completion by leveraging the suffix tree model to do approximate string matching.
- Designed and implemented new modular protocol buffer save file format, reducing project disk size by 20% and enabling granular version control over individual module files instead of one monolithic save file.

Dropbase *Aug 2023 - Dec 2023*
Software Engineering Co-op *San Francisco, CA*

- Designed and built a managed reverse proxy service to enable instant app demo deployment on private client VPCs that can be accessed by authorized users from anywhere via Dropbase as an intermediary.
- Implemented auto-reconnect between the the code editor and language server, improving uptime by 20%.
- Re-engineered flawed connection pooling in user database code, reducing query times by 94%.

Super.com *Jan 2023 - Apr 2023*
Software Engineering Intern (Platform) *Toronto, ON*

- Led the development and testing of async Python API integration modules with 3 major hotel suppliers, handling 3.8M+ queries per day to retrieve and book from a pool of 120k+ hotel rates.
- Routed high-risk transactions through a 3-D secure layer, reducing lost hotel bookings by 5%.
- Upgraded the requests wrapper in the core hotel search service to HTTPX and Python 3.9, reducing CPU usage by 44.8% and memory usage by 78.4%.

Super.com *May 2022 - Aug 2022*
Infrastructure Engineering Intern (DevOps) *Toronto, ON*

- Deployed Kubecost onto a production Kubernetes cluster with Helm and Terraform, using Python to aggregate actionable container resource allocation & utilization metrics to save $24,000/year.
- Architected an internal Python CLI tool used by 70+ engineers to automate common developer tasks.

Projects

N-Body Tool ⌂ tdude92/nbody-tool

- Developed a multithreaded & vectorized C++ library to simulate gravity on 10M+ particles.

Discord Distances ⌂ tdude92/discord-distances

- A NodeJS Discord bot using word2vec fine-tuning to cluster users based on texting styles.

Education

University of Waterloo *Expected: May 2026*
Candidate for Bachelor of Software Engineering, Honours *GPA: 3.9 (89%)*

- Courses: Data Structures & Algorithms, Databases, User Interfaces, Operating Systems

Technical University of Denmark *Sep 2024 - Present*
Department of Applied Mathematics and Computer Science *International Exchange*

- Courses: Machine Learning & Data Mining, Deep Learning, Concurrent Programming