

Adam Chen

[in linkedin.com/in/adamjiaqichen](https://www.linkedin.com/in/adamjiaqichen) github.com/encodeous [✉ contact@encodeous.ca](mailto:contact@encodeous.ca) [🌐 encodeous.ca](https://encodeous.ca)

Education

University of Waterloo

Bachelor of Software Engineering, Term Distinction (GPA: 3.97 / 4.00)

Sept 2023 – Apr 2028

Waterloo, Ontario

Experience

Oracle Labs (Incoming)

Compiler Research Intern | Graal, Java, Compilers

Jan 2025 – Apr 2025

Zürich, Switzerland

- Extend GraalOS Virtualization Technology by supporting **Just-In-Time compilation** of Truffle Language Interpreters
- Enable languages such as **Python** and **JavaScript** to run on GraalOS with native performance.

Cynorix Inc.

Full Stack Developer | React Native, Express.js, PostgreSQL, GKE & Vertex AI

May 2024 – Aug 2024

Waterloo, Ontario

- Implemented a relevant content suggestion system using **AI vector embedding** and **semantic search**.
- Optimized **PostgreSQL** query planning and improved execution time by over **10x** by parallelizing subqueries and building **HNSW indices** over **100k+** pgvector rows.
- Led the migration to a horizontally scalable **Kubernetes** cluster for jobs and backend services, improving ETL job speeds by **8x** and ensuring system reliability
- Integrated business requirements into a user-friendly **React Native** app with **Express.js** backend services

Electrium Mobility

Firmware Developer | C++, ESP32, Real Time Programming, Bluetooth LE

Feb 2024 – Present

Waterloo, Ontario

- Designed a low-power monitoring system for an e-skateboard with **Bluetooth LE**, improving metric tracking.
- Implemented **real-time data streaming** (<100ms latency) to a mobile **iOS** app, enhancing accuracy and reliability.

Desa Analytics Corporation

Software Engineer Intern | Python, XML, XBRL, Parser

Jul 2021 – Aug 2021

Toronto, Ontario

- Curated and parsed **10k+** financial reports from the US SEC database using an automated XBRL Pipeline
- Used NLP and XBRL Standards to achieve **90%+ accuracy** in extracting company performance metrics

Projects

Toyota Innovation Challenge (1st Place) | Python, PyTorch

[🔗 encodeous/tmmc-2023](https://github.com/encodeous/tmmc-2023)

- Won the Toyota Innovation Challenge, **surpassing 30 competitors** with an advanced machine learning vision model.
- Developed an inspection model (based on fine-tuned **YOLOv8**) for sticker quality, enhancing product consistency.
- Optimized for dark, low-contrast conditions, outperforming traditional vision systems.

root – A Universal Routing Framework | Rust, Network Routing, cargo Crate

[📦 crates.io/crates/root](https://crates.io/crates/root)

- Developed an extendable routing framework based on **RFC 8966** (Babel) for resilient mesh networks.
- Universal compatibility for IPv4, IPv6, and **custom address schemes**, incl. Cryptokey addresses (e.g., Wireguard).
- Designed support for **arbitrary** pluggable metrics to reduce latency, optimize bandwidth or other custom metrics.

VirtualEdit – Optimized World Modification | Java, Minecraft, Server Plugin

[🔗 encodeous/VirtualEdit](https://github.com/encodeous/VirtualEdit)

- Developed a library to modify vast areas (>**10⁹** tiles/blocks) **without client/server-side lag** using a 3D implicit segment tree and on-the-fly packet manipulation.
- Achieved log-time operations on the order of **100ns** by formulating
- Formulated an efficient data structure enabling log-time operations on the order of **100ns** over arbitrary ranges.

Awards and Achievements

USA Computing Olympiad: Platinum Division – Highest Division, ranked top 96 globally (US Open 2021)

Schulich Leader Scholarship (\$100,000): Offered by Schulich Foundation and McGill University (2023, Declined)

Undergraduate Research Award (\$6000): Natural Sciences and Engineering Research Council of Canada (2024)

Technical Skills

Languages: C#, Java, Python, C, C++, Rust, Bash, JavaScript, TypeScript, HTML/CSS, SQL, PostgreSQL

Technologies: .NET, ASP.NET (Core), WPF, Node.js, Svelte, React.js, Express.js, TensorFlow, Keras, Pandas, Tokio

Tools: Kubernetes, Helm, Docker, Git, NuGet, Maven, Gradle, CI/CD, Linux, AWS, GCP, Azure