

Francis He

✉ mail@francishe.com | 📞 416-565-8788 | 🌐 francishe.com | 🎧 Francis He | 📺 Francis He

Skills

Technical Languages: Rust, Python, TypeScript/JavaScript, C, C++, C#

Tools/Libraries: Tokio, Axum, Serde, Rayon, Core, SeaORM, FFI, Terraform, PostgreSQL, Unity&UE5, Linux

Services/Platforms: GCP (Firebase, Cloud Run), AWS (ECS, Eventbridge, Lambda, Cognito), Kubernetes, Docker

Work Experience

Staff Engineer • Reformulary Group — Toronto, ON

Jan 2026 - Present

- Overhauled an asynchronous ingestion pipeline in Rust using *tokio* and *reqwest* to concurrently aggregate and normalize 50,000+ Health Canada drug records, reducing runtime from 25 to 7 minutes (72% reduction) by leveraging *serde-rs* and stream combinators to handle diverse data formats with minimal latency
- Architected an in-memory diffing engine to reconcile historical state changes, utilizing *serde-rs* deserialization and zero-copy parsing to deduplicate records with controlled memory usage, decreasing cost by 72%
- Elevated system maintainability by designing domain-specific custom error architecture (*thiserror*) and structured logging, pairing trait-based *automock* and *SeaORM* with unit/E2E testing, dropping production defects to nearly 0%

Founder & Software Engineer • Robust Thinkers Co. — Remote

Sept 2025 - Present

- Independently architected a cross-platform React/Rust application (Web, iOS, Android) to Google Cloud Run, utilizing AI-driven workflows to automate boilerplate generation and ensure 100% test coverage
- Deployed an Axum backend server to Google Cloud Run and Cloud SQL, routing traffic via Cloudflare and implementing secure authentication using Firebase JWTs with custom deserialization

Software Developer (Security) • Intact Financial Corporation — Toronto, ON

Feb 2025 - Dec 2025

- Automated IAM account discovery across 6 technical domains via automatic analysis and remediation, reducing manual operational times by 75% for 30,000+ privileged and service accounts
- Winner of the Intact Tech-Innovation Days Hackathon for developing an all-in-one full-stack (TypeScript, Python) secure AI navigation system ensuring secure access to authorized LLMs while preventing data leakage all via automated algorithmic decision-making

AI Coding Expert / AI Trainer • Data Annotation — Remote

Oct 2024 - Feb 2025

Software Developer • University of Toronto — Toronto, ON

Jun 2024 - Oct 2024

- Achieved 250-millisecond spatial identification of presenters through the development of a Python/Bash software allowing the simultaneous operation of four PTZ cameras using intelligent voice-tracking technology
- Engineered a TCP/IP pipeline between the microphone, speaker, and a controlling device, utilizing 3D matrix transformations for precise pinpointing of individuals down to less 5 centimeters

Software Engineer Intern • Replicant Inc. — San Francisco, CA

May 2023 - Aug 2023

- Architected a scalable, serverless Docker/Kubernetes/Postgres service that enabled the delivery of shortened URLs via SMS and for important data statistics to be tracked from 3000+ customers per month and stored in a database with a strict observance for GDPR compliance

Software Engineer Intern • BluRoot Inc. — Toronto, ON

Sept 2022 - Dec 2022

- Developed a secure payment gateway using secure Rust algorithms combined with client-side caching via Redis; focused on attaining efficient processing speeds and a solution that reduced average transaction time from 30 minutes to under 5 minutes (500% reduction)
- Reduced Rust codebase compilation times by 20% through the implementation of custom serialization and deserialization algorithms and optimized data structures with *serde-rs* crate

Full Stack Developer Intern • Canada Startup Company — Toronto, ON

Jan 2022 - Apr 2022

Full Stack/ML Engineer Intern • Riff Inc. — Toronto, ON

May 2021 - Sept 2021

Education

University of Waterloo

Bachelor's - Psychology, Computer Science

Ontario, Canada

April 2024