

WORK EXPERIENCE

- **Citi** New York, NY
Software Engineer AVP - Risk Analytics Products *July 2023 - Present*
Software Engineer Contract *May 2022 - July 2023*
 - Build the initial implementation of Citi's new vectorized risk ratings engine used across the firm's portfolio
 - Lead efforts to cut wholesale loss model runtimes by 90%+ using distributed graph computation
 - Detect schema incompatibilities and logic errors ahead-of-time in risk models encoded as JSON-serializable graphs
 - Build a compiler for a type-safe DSL with UDF support for faster and safer numerical computations
 - Build an add-on framework to apply region-specific wholesale loss model logic at runtime
- **OANDA** Toronto, ON
Software Developer Intern - Trading Engine / Execution *May 2020 - August 2021*
 - Optimize polling logic in multi-queue ZeroMQ cases to reduce CPU usage by 90%+ and improve responsiveness
 - Investigate memory fragmentation issues in TCMalloc for long running processes with high memory usage
 - Improve stability of reporting and notification services running on Twitter Finagle
 - Migrate a group of services out of a large monorepo to facilitate faster and more atomic releases

EDUCATION

- **University of Toronto** Toronto, ON
Bachelor's Degree - Computer Science Specialist and Applied Statistics Minor *September 2018 - April 2023*
 - Honours Bachelor of Science with High Distinction: 3.85/4.00 CGPA
 - University of Toronto Scholar – 2019, 2020, 2022, and 2023 Dean's List Scholar

INVOLVEMENTS

- **Imglabs.io** Toronto, ON
Co-Founder *April 2022 - Present*
 - Distributed image proxy written in Rust and deployed using WebAssembly to 300+ edge locations
 - Currently in production with commercial customers serving 10TB+ monthly
 - Serverless architecture for industry-leading cost efficiency and performance
 - Software stack: Rust, WebAssembly, JavaScript, React, Next.js, Tailwind CSS, Cloudflare Developer Platform, AWS S3, ClickHouse, Prometheus, Grafana, Supabase, GoTrue, PostgreSQL, PostgREST, Docker, Stripe

PROJECTS

- **Citi/scaler** (Citi/scaler): Efficient, lightweight and reliable distributed computation engine
- **Citi/pargraph** (Citi/pargraph): Graph generation and computation library for Python
- **Citi/parafun** (Citi/parafun): Lightweight parallelization and map-reduce library for Python
- **Dsfs** (darenliang/dsfs): A highly-experimental filesystem in userspace using FUSE with an exotic backend
 - Exotic backend: Files, folders, and transactions are stored using Discord attachments
 - Append-only log-structured filesystem: Supports automatic snapshots and rollback
 - Realtime synchronization: Syncing files and folders between remote clients in realtime
- **Nikel API** (nikel-api/nikel): Free and open data API for the University of Toronto
- **MikuBot** (darenliang/MikuBot): General purpose Discord bot serving more than 9,000 servers (discontinued)
- **Quteman** (darenliang/quteman): A simple Postman alternative written in C++ and Qt
- **Resauce** (darenliang/resauce): A work-in-progress file rename utility written in C++ and Qt

SKILLS

- **Languages:** Python, Go, C/C++, Rust, JavaScript/TypeScript, Java, Scala, SQL
- **Assessments:** CodeSignal: 600/600