Daren Liang

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Work Experience

- **Citi** — New York, NY
  Software Engineer VP - Risk Analytics Products — *April 2025 - Present*
  Software Engineer AVP — *August 2023 - March 2025*
  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 a realtime schemaless report generation framework with DuckDB and Parquet
- **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

- **Scaler** (`finos/opengris-scaler`): Efficient, lightweight and reliable distributed computation engine
- **Pargraph** (`finos/opengris-pargraph`): Drop-in Graph/DAG generation and computation library for Python
- **Parfun** (`finos/opengris-parfun`): Lightweight parallelization and map-reduce library for Python
- **RAG Using Qdrant with Polymarket** (`demo`): Fast search and summarization of real-time event contracts
- **Columnar Financial Statements Querying** (`demo`): Query SEC Form 10-Qs in the browser using DuckDB WASM
- **Dsfs** (`darenliang/dsfs`): A highly-experimental filesystem in userspace using FUSE backed by 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 (discontinued)
- **MikuBot** (`darenliang/MikuBot`): General purpose Discord bot serving more than 9,000 servers (discontinued)

Skills

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