

EDUCATION

University of Waterloo

Waterloo, ON

- *Bachelor of Science in Computer Science, Honors Co-op*

Sep. 2020 – Apr. 2025

Crown Prince University Scholarship – Full-ride.

- **Classwork:** Compilers, Operating Systems, Data Structures & Algorithms, Database Management, Object-oriented Programming, Functional Programming, Computer Architecture, Graph Theory.

EXPERIENCE

Modern Treasury

San Francisco, CA

- *Software Engineering Intern – Payment Rails*

May 2023 – Aug 2023

- **Ingestion Concurrency:** Addressed 3 high-profile race condition incidents by introducing object locks and automatic object de-duplication, unlocking 10x increases throughput and saving \$40,000 in damages per-incident.
- **Data De-duplication:** Improved the reliability of data importers by making de-duplication logic declarative instead of procedural via a Ruby DSL, removing all known de-duplication bugs in bank import pipelines.
- **FedNow:** Led first support for the new FedNow rail by writing serializers, deserializers, and integration tooling.

Modern Treasury

San Francisco, CA

- *Software Engineering Intern – Payments Platform*

Jun 2022 – Sep 2022

- **Micro-deposits:** Protected customers from losing more than \$5,000 per month from unrecouped account verification micro-deposits by implementing simultaneous debit and credit transactions, complying with NACHA.
- **Data Staleness:** Reduced inbound per-month support ticket frequency by 35% through a Datadog early warning system that catches stale balance data before effects propagate downstream to customers as errors or bugs.
- **Historical Balance Reports:** Owned and shipped a customer feature request for dynamically-generated historical balance reports in many formats.

Radix Labs

- *Software Engineering Intern – Schedulers*

Jan 2022 – May 2022

- **Scheduler API:** Unblocked the delivery of a new scheduler engine by designing lossless conversions between old and new scheduler APIs, allowing the usage of existing React frontends and GraphQL schemas.
- **Scheduler Test Harness:** Reduced lines of Scala code needed to write scheduler tests by 90% via heuristic benchmarking infrastructure which can combine arbitrarily-complex scenarios, generate them pseudo-randomly, and aggregate test results.

Mavennet

Toronto, ON

- *Software Engineering Intern*

May 2021 – Aug 2021

- Achieved software compliance by integrating Amazon QLDB to provide an immutable record of platform activity.
- Migrated the core backend from MySQL to serverless Aurora which reduced monthly database costs by 45%.
- Set up the staging and production environments for Neoflow and MetalTrail by adding CLI wrappers to the aws-cdk utility, automating the majority of DevOps work.

PROJECTS

- **C-flat Compiler:** A maximal-munch scanner and recursive descent parser for a near-complete subset of C99, using custom-built trie data structures for extensible keyword scanning.
- **LetsMuk (2nd Place DeltaHacks 7):** A Ruby on Rails truth and synchronization service which a Flutter video chat app used to fetch most recent metadata and as a proxy server to the Agora Video API.
- **minisqlite:** A light SQL memory store which contains an SQL parser, execution engine, and in-memory storage infrastructure, written in C using only the standard library.

PROGRAMMING SKILLS

- **Languages:** Ruby on Rails, C, Python, Scala, TypeScript, SQL, Java, Arm Assembly, NodeJS, Flask.
Technologies: Git, AWS (EC2, RDS, EBS, CDK), Bazel, Docker, PostgreSQL, Datadog, Redis.