

RICHARD ZHANG

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EDUCATION

University of Waterloo

Waterloo, ON

BASc, Systems Design Engineering 3.85 / 4.00 GPA (Deans List)

2022 - 2026

- Relevant Courses: Data Structures, Algorithms, Systems Programming & Concurrency
- Awards: Deans List, Faculty of Engineering Scholarship, Presidents Distinction

SKILLS

Languages: Go, Python, Rust, TypeScript, Bash, C#

Frameworks: Chi, Express.js, Next.js, Django

Tools: Git, Docker, Kubernetes, AWS, PostgreSQL, Redis, Pulumi

PROFESSIONAL EXPERIENCE

Blendable

Waterloo, ON

Backend Engineering Intern

May 2024 - Aug. 2024

- Shipped **Python** observability APIs for insurance transfers **saving \$100/month** by replacing accounting SaaS and decreasing observability report generation times by **63%** through reduced API calls
- Refactored invoice service with **extensible classes, abstractions, and functional options** to easily onboard 5 new report types and consolidate document generation logic for over **80+ report variants**
- Overhauled ACH payments API and database schema to support Managing General Agencies (MGAs) using **Django** to enable the onboarding of backlogged **insurance plans totalling \$1.9M+**
- Increased code coverage by adding automated unit tests for critical invoice functions using **Django unit test**

Jitto

Toronto, ON

Fullstack Engineering Intern

Aug. 2023 - Dec. 2023

- Led REST API and infrastructure migration from **DynamoDB** to **RDS**, reducing database size by **9%** through **database normalization** and enabling multi-supplier product support through improved relational modelling
- Developed **Python Lambda function** automating weekly ingestion of PDF pricing data, **freeing up 5 hours a week** from the operations team and reduced data staleness

EnergyIntell

Toronto, ON

Software Engineer Intern

Jan. 2023 - Apr. 2023

- Architected ETL pipeline moving **50+ million rows/year** of historical electrical data to cold storage using .NET with Entity Framework, lowering archival job time from **2 hours to under 10 minutes** and reduced database volume by **20%**
- Modernized energy data SOAP web service into REST API to support interoperability using .NET and LINQ, reducing fetch speeds by **21%** and payload size by **40%**

PROJECTS

Wikigraph - Measure things with Wikipedia | Go, Rust, MySQL, Docker

[Github](#)

- Engineered **Rust-based** Wikipedia link parser **compressing 92 GB of XML Data into a 1.27 GB** Binary graph format, achieving a **6 hour** faster runtime compared to alternative parsers (Wikicrush)
- Achieved a **35x improvement** in path finding speeds from **1.2s to 3ms** across multiple tests by implementing concurrent, bi-directional BFS using **goroutines and concurrency primitives**

Uprank (beta) - Freelancer Analytics SaaS | Go, Python, gRPC, Pulumi, AWS(SQS, ECS)

[Demo](#)

- Built SaaS to help small business owners hire freelancers using LLMs to convert profile data into filters for **10+ users**
- Implemented **concurrent** job ranking pipeline with **Go**, using **Python gRPC functions** with Pandas and Pinecone to compute freelancer data features

Fly.io Gossip Glomers | Go, RPC, Distributed Systems

[Github](#)

- Designed and implemented a fault-tolerant, efficient **distributed broadcasting system** on Maelstrom, beating both latency and message-per-op benchmarks by **78% and 22%** respectively