

# Richard Zhang

SOFTWARE ENGINEER

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## Education

University of Waterloo 3.91 GPA

Waterloo, Canada

BASC IN SYSTEMS DESIGN ENGINEERING

2022-Present

- Relevant course work: Data Structures and Algorithms, Digital Computation (C++), Human Factors in Design

## Skills

**Languages** Typescript/Javascript, Python, SQL, C#, C++  
**Frameworks** Flask, Express.js, Node.js, React, .NET Core  
**Technologies** Git, PostgreSQL, Cloudformation, Redis, Vercel, AWS (RDS, Lambda, API Gateway...)

## Work Experience

Jitto

Toronto, Canada

FULLSTACK ENGINEER

Aug. 2023 - Present

- Spearheaded database migration from DynamoDB to Aurora ServerlessV2, designing Network and Database architecture using AWS CloudFormation. This led to a **23% improvement in REST APIs performance** and a **21% reduction in operational costs**
- Automated pricing data ingestion via ETL pipelines with weekly cron jobs, eliminating manual intervention and **improving data synchronization time by 12%**.
- Optimized lead generation scraping algorithm with **multi threading using Node.js worker threads** and Puppeteer, **achieving a 66% reduction in data retrieval time** for over 7000+ leads

EnergyIntell

Richmond Hill, Canada

SOFTWARE ENGINEER

Jan. 2023 - Apr. 2023

- Architected ETL pipeline to **archive over 50+ million rows of data** from SQLSever database to cloud data store using .NET with Entity Framework, following CQRS design patterns using **MediatR. Lowered job time from 5 hours to under 10 minutes** and **reduced database volume by 20%**.
- Migrated dashboard data-fetching SOAP web service to a REST API using .NET Core and LINQ, leading to **21% faster fetch times and a 40% reduction to payload sizes**.
- Improved existing data-fetching REST API's by implementing asynchronous short-polling to fetch dynamic data using Ajax and and Stored SQL procedures, resulting in **14% faster data fetching speeds**

## Projects

**sign:here - Document Semantic search - React, Flask, co:here, Qdrant**

[LINK](#)

- Developed a natural language chatbot using co:here's LLM allowing users to converse about their legal documents with document specific context.
- Utilized context injection into the LLM with Qdrant's vector similarity search engine/ database to perform semantic search.

**write:here (Hackville 2023 winner) - Next.js, co:here, Google Vision API**

[LINK](#)

- Deployed a fullstack application to parse hand written letters into emails providing users who are unable to type with an intuitive and nostalgic way to send emails.
- Led cross-team initiative to integrate Google Vision API with co:here's natural language model to parse, spellcheck, and format the parsed text.

**Mock Ecommerce store front- Next.js, AWS Lamdba, AWS API Gateway, DynamoDB,**

[LINK](#)

- Deployed fullstack web app to process mock ecommerce store orders with from-scratch JWT based user authentication using AWS Lambda functions
- Routed AWS Lambda functions API Gateway methods to perform CRUD operations on DynamoDB database.

**Phone ordering system- Flask, Twillio, Langchain**

[LINK](#)

- Utilized OpenAI's Whisper model and twillio to transcribe hypothetical orders from incoming Phone calls, which were extracted and converted to structured JSON using Langchain and prompt engineering