

RICHARD ZHANG

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Education

University of Waterloo

Sep. 2022 – Present

Bachelors of Applied Science in Systems Design Engineering- **3.85 GPA**

Waterloo, Ontario

- Relevant course work: Digital Computation (C++), Linear Algebra, Introduction to Design, Graphics (Solidworks)

Technical Skills

Languages: Typescript, Javascript, Python, SQL, C++

Technologies: Next.js, React.js, Express.js, Node.js, Flask, Pytorch

Tools: Git, PostgreSQL, Prisma, Qdrant, Websockets, Redis, Vercel

Experience

EnergyIntell

January 2023 – April 2023

Software Engineer

Richmond Hill, Ontario

- Architected ETL pipeline to archive over **50+ million** rows of data from **SQLSever** database to cloud data store using **.NET** with **Entity Framework** and **MediatR**, and **dependency injection**. Lowered job time from **2 days** to under **10 minutes** and reduced database volume by **20%**.
- Spearheaded the development of the Mobile dashboard application using **React Native** and **.NET Core**. Documented and shipping a JWT-based Auth solution protecting API routes and securing sessions
- 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.

RJR Media - Web Consulting Agency

January 2023 – April 2023

Founder

Toronto, Ontario

- Designed and developed a photo and video gallery for **Scarball Basketball** using **Sanity** CMS, **Next.js**, and **Mux** video player, increasing brand awareness and social presence
- Designed and developed a car detailing **booking website** using **Next.js**, **Prisma**, and PlanetScale's **MySQL** database, simplifying the booking process for customers as well as fulfilling appointments

Projects

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

[LINK](#)

- Developed a natural language chat-bot using **React** and **Flask** using **co:here's NLP** allowing users to submit their own pdf's as prompt context
- Implemented semantic search with **Qdrant's** vector similarity search engine/database and **context injection** enabling the chatbot to use chunks of the users documents as context.

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

[LINK](#)

- Deployed a fullstack web application using **Next.js** and **Vercel** 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.

Bigram Language Model *Python, Pytorch*

- Utilized **Pytorch** to implement a **Multilayer Perceptron** based Bigram Language Model generating unique names.
- Optimized the model using **Stochastic Gradient Descent** with Pytorch's autograd library on a training data-set of 25K names, implementing **minibatching** to expedite the training process.

Realtime chat application *Next.js, Prisma, Clerk, PlanetScale*

- Developed web socket server built using **Next.js** and **Socket.io** allowing users to communicate in real-time.