Richard **Zhang**

SOFTWARE ENGINEER

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Education

University of Waterloo 3.85 GPA *Waterloo, Canada*

BASC IN SYSTEMS DESIGN ENGINEERING *2022 - 2027*

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

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

Work Experience

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 and MediatR, and dependency injection. Lowered job time from **2 days** to under **10 minutes** and reduced database volume by **20%**.
- Developed the Mobile dashboard application using React Native and .NET Core. Delivered and shipped 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 *Toronto, Canada*

FOUNDER *Jan. 2023 - Apr. 2023*

- 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 fufilling appointments

Projects

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

- Developed a natural language chatbot using co:here's NLP allowing users to converse with AI chatbots about their legal documents with specific context.
- Injected document context into the NLP using 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 web 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.

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.