

RICHARD ZHU

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EDUCATION

University of Waterloo

Sep 2022 - Apr 2026

Bachelor of Computer Science (AI Specialization) and Statistics, 4.0 GPA

Courses: Reinforcement Learning, Distributed Systems, Object-Oriented Programming, Data Structures, Algorithms

EXPERIENCE

Full Stack Software Engineering

Jan 2024 - May 2024

Jitto

Toronto, ON

- Built admin portal backend using **AWS Lambda** and **AWS CloudFormation**, leading to a company-wide productivity increase of **60%** by automating order management and document generation.
- Refactored **AWS DynamoDB** schema using **Python**, resulting in a **99% reduction** in monthly AWS costs while ensuring scalability through a transition from relational to non-relational structure.
- Built an internal component library with RadixUI, reducing React bundle size by **90%** and load times by **45%**.
- Wrote a **Selenium**-based Yellow Pages scraper to improve customer outreach, surpassing a previous scraper's coverage by **40%**, reducing its runtime by **50%** and data extraction failures by **30%**.
- Implemented forgot/reset password with **AWS Cognito** and added protected routing for enhanced security.

Software Developer Intern

May 2023 - Sep 2023

Gelenk Networks Inc.

Markham, ON

- Built an interactive chat application using **React**, **Node**, and **Socket.IO**, integrating with existing web interface to facilitate real-time communication and enhance user engagement.
- Developed multiple full-stack tools with **Vue** and **Node**, constructing RESTful APIs, integrating **CouchDB** for greater flexibility in data management, and utilizing Vuetify to create user-friendly frontends.
- Led the development of an AI Travel Planner, automatically generating and deploying itineraries as distinct webpages with a UUID-based URL, resulting in a **20% improvement** in SEO engagement.

PROJECTS

MotiSpectra - 2nd Place Overall at ConUHacks

Feb 2024

- Developed a real-time attentiveness and emotion analysis software using **Next.js** and **Python** to seamlessly integrate with virtual call platforms (Zoom, Google Meet, MS Teams).
- Trained a **CNN** on the FER-2013 dataset using **TensorFlow** to achieve a **70% accuracy**, used data augmentation and ensemble learning to train a separate model on an attentiveness dataset, achieving a **67% accuracy**.
- Implemented a UI with dynamic radar graphs and moving averages to visualize emotion and attentiveness data.

NarratorRL - 1st Place Cohere Challenge, 2nd Place Overall at MetHacks

May 2023

- Built a mobile app using **React Native**, **Django**, and **Tesseract OCR** that detects words in images and provides audio narration, empowering individuals with visual impairments.
- Implemented advanced features with the Cohere API including text summarization and language detection. Trained two custom NLP models to verify the legibility of text and to summarize text into keywords.

Review Recap - 1st Place Noibu Challenge at uOttHack

Feb 2023

- Built a **Chrome extension** in **JavaScript** that compiles Amazon reviews and sorts their keywords by frequency and rating, allowing customers to make more informed decisions and increase purchasing efficiency.
- Implemented **multi-threading** with **Beautiful Soup** in Python to scrape **5000+ reviews in seconds**.

SKILLS

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|-----------|---|
| Languages | Python, TypeScript, JavaScript, C++, C, SQL, HTML, CSS, Go, Java, R, Bash |
| Tools | AWS, Google Cloud, Microsoft Azure, MongoDB, CouchDB, MySQL, Vercel, Linux, Git |
| Libraries | React, Node, Vue, Django, Selenium, Redux, TensorFlow, OpenCV, Tesseract |