# Ray Guan

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## EDUCATION

**University of Waterloo** — Waterloo, ON
*Bachelors of Computer Science, Minor in Statistics | 4.0 GPA* — *Sept 2023 – April 2028*

- Coursework: Object-Oriented Programming, Data Structures, Computational Logic, Computer Architecture, Discrete Mathematics, Probability, Statistics, Linear Algebra 1, Calculus 1/2/3

## WORK EXPERIENCE

**Full Stack Developer Intern** — Waterloo, ON
*SAP Canada* — *Sept 2025 - Present*

- Leading the development of a **JavaScript** and **Flask** application for **100+** developers to monitor code pushes and manage **Jenkins** builds.

**Full Stack Developer Intern** — Belleville, ON
*BCS Automation Ltd.* — *Jan 2025 – Apr 2025*

- Built a vessel analytics platform with a **React + TypeScript** frontend and **ASP.NET Core C#** backend to monitor **1,700+** sensor signals.
- Optimized Azure Data Explorer database queries with Materialized Views, cutting query time by **99.97%**.
- Implemented real-time data streaming in C# using SignalR over **WebSockets**.
- Researched and trained an **LSTM autoencoder** in **PyTorch** for anomaly detection.
- Developed a Flask **REST API**, orchestrating async training jobs with **Celery** and **Redis** for ML workloads.

**Software Developer Intern** — Markham, ON
*Giesecke+Devrient ePayments Canada* — *May 2024 – Aug 2024*

- Built a **Retrieval-Augmented Generation (RAG) chatbot** using Azure AI Search to query and retrieve information from **600+** internal documents.
- Migrated **10+** applications from Azure DevOps to Bitbucket via **Jenkins**, streamlining version control processes and improving CI/CD efficiency
- Wrote **100+** unit tests using MSTest, maintaining **80%+** code coverage across multiple projects.
- Developed a Blazor-based chatbot interface in C#, integrating MudBlazor components for a modern UI.

## PROJECTS

**K.A.I.** | *Python, LangChain, Flask, SQL*

- Built an AI assistant for Kaizen Lift Ltd. to automate work order generation and inventory tracking, cutting operational time by **60%**.
- Integrated **LangChain** with GPT-4o to convert natural-language prompts into executable database queries.
- Deployed a Flask backend connected to an **Aiven SQL** database, managing 90 customers and 300+ forklifts.

**Calliope** | *Python, Node.js, Express.js, Flask, MongoDB, Scikit-learn*

- Built a full-stack **MERN** application integrating Spotify's API to deliver personalized music recommendations.
- Implemented cosine-similarity in **Scikit-learn** to analyze user preferences and predict similar tracks.
- Managed **140 000+** song metadata entries in **MongoDB** for fast filtering and retrieval.
- Combined **Express.js (Node)** and Flask (Python) services for data processing and API orchestration.

**Pokemon Battle Simulator** | *Java, Git*

- Built a 2D Pokémon game in **Java**, using **OOP** class hierarchies for Pokémon, attacks, and battle mechanics.
- Developed a graphical interface with AWT and Swing to visualize battles and player interactions.
- Used **Git** and **GitHub** for version control to collaborate with team members.

## TECHNICAL SKILLS

**Languages**: C++, C#, Java, Python, JavaScript, TypeScript, SQL
**Frameworks & Libraries**: React, Blazor, ASP.NET Core, Flask, Express.js, LangChain, Celery, Redis
**Cloud & DevOps**: Microsoft Azure, Jenkins, Bitbucket
**Tools & Databases**: Git, Postman, MySQL, MongoDB, SSMS, Visual Studio, VS Code, Eclipse