Gavin Xue

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TECHNICAL SKILLS

Languages: Python, JavaScript, TypeScript, C++, C, Java, SQL, PHP, HTML, CSS, Bash
Technologies: React, Node.js, Express.js, Next.js, Flask, MongoDB, PostgreSQL, Redis, pandas, Matplotlib
Developer Tools: Git, Linux, Docker, Jira, Selenium, Cypress, AWS (Certified Cloud Practitioner 🔗),

EDUCATION

University of Waterloo   GPA: 3.9
Bachelor in Computer Science   *Sep 2023 – Apr 2028 (Expected)*
- Awarded **1 of 10** René Descartes National Scholarships (**$20,000**) from the Faculty of Mathematics

EXPERIENCE

Environment and Climate Change Canada   Jan 2025 – Present
Software Developer   *Toronto, ON*
- Led the development of a new climate forecasting product, integrating **D3.js** for interactive data visualizations and using contour plots generated with **pandas** and **Matplotlib** to support scientific research
- Collaborated with **4 cross-functional teams** to successfully launch the service, achieving **400+ users in the first month**
- Refactored legacy code to follow **MVC architecture**, improving modularity and reducing the codebase by **500+ lines**

Develop for Good   Oct 2024 – Feb 2025
Software Developer   *Remote*
- Built a dynamic analytics dashboard with Next.js, aggregating client data from **3 separate sources** to streamline administrative operations for a nonprofit cat clinic
- Accelerated **data preprocessing times by 90%** by fine-tuning an OpenAI GPT-4 mini model for batch cleaning of **50,000+ CSV records**, later ingested into a SQL database for efficient querying
- Developed an interactive map using Leaflet, showcasing **5000+ locations with insights** migrated from Google Maps

UW Mathematics Society   May 2024 – Aug 2024
Web Developer   *Waterloo, ON*
- Refactored backend services using Express.js, implementing **dynamic route handling for 150+ store items** and building a lightweight content management system for maintainability
- Enforced consistent data structures by integrating **TypeScript** and JSON schemas, improving type safety and reliability

University of Waterloo   May 2024 – Aug 2024
Information Technology Support Assistant   *Waterloo, ON*
- **Reduced testing time 10x** by automating manual UI testing workflows with Selenium WebDriver
- Automated spam filtering with Python scripts and the Jira REST API, **improving ticketing system cleanup efficiency by 80%** and enhancing team productivity
- Led the development of a research site, coordinating directly with stakeholders to meet design and functionality requirements

PROJECTS

notefuse ⬀ | *Next.js, React, PostgreSQL, Redis, AWS S3, Pinecone, OpenAI*
- Developed a **RAG** chatbot to analyze and extract insights from PDFs, powered by **Next.js** for server-side optimization
- Designed a type-safe document processing pipeline using **LangChain** and OpenAI LLMs to embed and index documents into a Pinecone **vector database**
- Connected a robust API for secure file storage and retrieval through **AWS S3**, ensuring reliability and scalability

Item Lending System ⬀ | *React, Express.js, Node.js, PostgreSQL, Cypress*
- Implemented **REST API endpoints** using **Express.js**, integrating the app with a serverless **PostgreSQL** database to facilitate CRUD operations for **300+ data entries**
- Achieved **over 90% test coverage using Cypress**, reducing end-to-end regression testing times

Broken Link Checker ⬀ | *Python, Flask, BeautifulSoup4, Heroku*
- Built a web scraping tool using BeautifulSoup4 to validate hyperlinks through HTTP response analysis
- Integrated a bidirectional **websocket** connection for real-time feedback between the **Flask** backend and the frontend