

ERICA (XUAN) HE

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[Portfolio Website](#) ◇ [LinkedIn](#) ◇ [GitHub](#)

SKILLS

Languages: C++/C, Java, Python, JavaScript, SQL, HTML, CSS, System Verilog, ARMx64
Tools React, Node.js, Sklearn, REST API, Pandas, Bootstrap, MongoDB, MySQL, jQuery, GDB

EDUCATION

University of British Columbia Expected May 2026
Bachelor of Applied Science - Computer Engineering
Relevant Course: Java OOP, D.S. & Algo C++, Web Dev., Database Design, Machine Learning, Computer Networking

TECHNICAL EXPERIENCE

Research Assistance - Generative AI Apr 2024 - Present
UBC Sauder School of Business

- Spearheaded the development and optimization of advanced image classification models with video inputs, significantly enhancing the accuracy and efficiency of automated image analysis systems.
- Conducted in-depth performance benchmarking of various state-of-the-art multimodal LLMs, utilizing advanced data processing and labelling techniques to enhance model training and validation..

Software Member - Pianobot Sep 2022 - Nov 2023
UBC Open Robotics

- Engineered a translation system in C++ and Python to convert MIDI files into robot-readable data sequences, detailing hand positions and keyboard actions, crucial for real-time robotic control and performance accuracy.
- Designed and implemented rigorous unit and regression testing protocols to ensure the reliability and robustness of the system, aligning with industry best practices for software quality assurance.

PROJECTS

Chatting App

- Developed a secure Single-page Application using JavaScript (employing OOP practices with classes and prototypes), Node.js, and Flask, following the MVC pattern. Ensured robust security by managing user sessions and securely storing chats in MongoDB, and implemented defenses against XSS attacks.
- Leveraged Generative AI with for text analysis and DALL-E for image generation, enhancing user interaction by offering emotive analysis and dynamic meme suggestions.

Wildfire Detection Module

- Developed a real-time wildfire monitoring system using Python-programmed microcontrollers for continuous data collection, paired with efficient TCP socket-based data transmission for immediate processing.
- Created a responsive data visualization interface using React and TailwindCSS, enabling instant risk assessment and decision-making from environmental sensor data.

Grocery Shopping Web App

- Led the development of a comprehensive e-commerce solution using Node.js, React, and Material-UI, with a focus on creating a responsive and intuitive user interface and a seamless user experience.
- Designed and optimized a complex, highly normalized MySQL database schema adhering to BCNF principles, and crafted optimized SQL queries to ensure efficient data retrieval, crucial for handling high transaction volumes.

Pub-Sub with Twitter

- Implemented a Java-based application interfacing with the Twitter API, allowing users to managereal-time data efficiently, demonstrating skills in API integration and real-time data processing, and synchronization techniques.