ERICA (XUAN) HE

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SKILLS

Languages: C++/C, Java, JavaScript, Node.js, Python, MySQL, HTML, CSS, System Verilog, ARMx64
Tools Android Studio, Git, Linux, GDB, Postman, Quartus, ModelSim, Arduino

EDUCATION

University of British Columbia Expected May 2026
Bachelor of Applied Science - Computer Engineering
Co-op Status: Available for 4 or 8 months starting May 2024

ENGINEERING STUDENT TEAM

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

- Implemented a translation program in C++ and Python that converts MIDI files into lines of data that indicates robot hand positions and finger pressing states on a keyboard in time order
- Conducted integration testing on input/output sourcing

PROJECTS

Wildfire Detection Module

- Designed a system that collects real-time environmental data from solar-cell-powered sensors and reflects the analyzed wildfire risk on a web app
- Implemented sockets using TCP protocols to transmit data from the microcontroller to remote server using PHP scripts and Python
- Participated in building a web app that fetches data from the MySQL database and renders data dynamically

Maze Game

- Developed a C++ program that generates a maze comprising hexagon cells and solves the maze by determining the minimum distance from a source cell to a destination cell.

RC4 Decryption

- Implemented an RC4 decryption program that takes a 24-bit secret key and decrypts a 32-byte message using System Verilog on De1SoC
- Gained experience in FSM design and interacted with ROM and RAM

Dancing Robot

- Designed a dancing robot on Raspberry Pico using CircuitPython, featuring several hardware components including servo motors, LCD, and distance sensors, etc.

Pub-Sub with Twitter

- Implemented a program in Java that interacts with the Twitter API that assists users manage and fetch unread Tweets
- Implemented a 5-minute data caching system and gained experience in concurrent programming

Potato Machine

- Designed a small CPU in System Verilog that can fetch/decode instructions, read/write to memory, and perform multiple arithmetic operations on 16-bit binary data.