Jim **Liu**

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Skills

Programming: • C/C++ • Python • Java • MATLAB • Verilog • JavaScript
Relevant Courses: Operating Systems • Data Structures and Algorithms • Programming
Miscellaneous: Microsoft Suite • Web Development • English and Mandarin
Soft Skills: Team player • Problem solver • Communication

Experience

Chess Engine   Jan 2023 – Apr 2023
- Built and deployed a functional chess engine using *C* for the DE10 FPGA.
- Used a 3-dimensional array to map the board for move legality.
- Replicated standard chess functions including Castling, Promotion, En Passant and Check/Checkmate.
- Implemented a fully functional double buffering system for smooth motion on the VGA display.

Team Based • Transceiver   Jan 2023 – May 2023
- Wrote a Verilog implementation of a transmitter module following the I2S standard. The module employs a shift register to create a serialized output by combining 24-bit input streams according to the LRCLK signal and produces a serial output.
- Facilitated and coordinated weekly team discussion sessions to share progress and resolve any challenges and issues.

Voice Assistant   Sep 2021 – Dec 2021
- Implemented a personal voice assistant in Python using Google's speech recognition API.
- Functionalities include smart home light control, current time, weather, and reminders.

Autonomous Driver   July 2020
- Built a driver assist program using Python, *OpenCV*, and *TensorFlow* for GTA V and F1.
- Used a Hough lines algorithm to determine relative position within a lane and sent corrective keyboard inputs to counteract drifting.

Education

University of Toronto
2021- 2025 (expected)
B.S. Computer Engineering + PEY
Minors in Business and Robotics

Certifications

freeCodeCamp Bootcamp • Jun 2023
- Completed the Responsive Web Design, JavaScript Algorithms and Data Structures, and Front-End Development certification.
- Built several portfolio projects including a pomodoro timer, a tenzies game and a JavaScript calculator.

UofT Summer Machine Learning Course • Aug 2022
- Completed a machine learning bootcamp utilizing Python and TensorFlow.
- Built image recognition program with a 71% prediction accuracy.

Interests

Software Development • Robotics • Fitness • Travel • Self-Improvement