

DANIEL XIE

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EDUCATION

Bachelor of Engineering Science, Computer Engineering
Western University, London, ON

September 2019 - Present

WORK EXPERIENCE

Biophysics of Communication Lab - Research Assistant
Western University, London, ON

October 2021-Present

- Developing and troubleshooting a custom Windows sound editor and generator application that integrates OCT (Optical Coherence Tomography) imaging system with data acquisition equipment and an audio system. Implemented with Python and Matlab.
- Set project timelines, prioritized tasks, created diagrams for ideation and communicated check-in updates to the head researchers to ensure that the project was on track.
- Improved workflow, data sampling rate precision and data acquisition efficiency.

PROJECTS EXPERIENCE

Western Formula Racing - Traction/GLV Team Member
Western University, London, ON

September 2019-Present

- Developed and designed a DC-DC converter PCB (500V to 12V) with teammates using EAGLE AUTODESK that was compliant with the Formula SAE safety guidelines.
- Updated the Power Distribution Module PCB design utilizing undervoltage protection circuits to prevent overdischarge of the lithium-polymer battery cells.
- Designs helped the team earn third place in the Formula SAE North American EV Presentation Event.
- Supported subsystem projects with duties including: sourcing components and generating BOMs, communicating design concepts to teammates, generating documentation, advising PCB assembly and troubleshooting.

Western AI - Summer/Gideon Projects Member
Western University, London, ON

September 2019-May 2021

- Developed and troubleshooted a Long Short-Term Memory neural network model with a business applications team to predict stock prices.
- Developed, trained and troubleshooted VGG16 neural network models with two teams that achieved ~95% accuracy in diagnosing different Alzheimer's disease stages from MRI images and achieved ~92% accuracy in diagnosing 14 different diseases X-ray scans.

Smart Door Lock

March 2021 - April 2021

- Simulated and designed an Arduino-based smart door lock for a backyard shed using TinkerCAD software.
- Generated BOM and prototyped the smart door lock with BLE capability, stepper motor, and I2C LCD display on breadboard.
- Designed schematic and PCB layout for a custom Arduino shield using Eagle.

COVID Safety Smart Room Controller

February 2021 - April 2021

- Developed embedded software in C for an ARMv7 microcontroller to track the number of occupants in a room and enforce COVID-19 safety guidelines.
- Implemented using peripherals such as timers, interrupts, counters and seven-segment displays.

FPGA CPU with Unified Cache

October 2021 - December 2021

- Designed control logic for a RISC-based FPGA CPU using an Unified cache to fetch, decode and execute 14 instructions.

- Implemented in VHDL and used components such as up-counters, registers, multiplexers and logic gates. Minimized the amount of clock cycle executions possible to ensure efficiency in execution time.

SKILLS

- **CAD/ECAD:** Eagle Autodesk, Saturn PCB Design Toolkit, Onshape, SolidWorks, Cadence Virtuoso
- **Prototyping:** Arduino, ESP32, CANBUS, Breadboard Circuits
- **Programming Languages:** Python, Java, MATLAB, C, C++, VHDL, Rust, Bash, ARM Assembly
- **Software:** IntelliJ, Quartus Prime, Microsoft Visual Studio Code, Microsoft Visual Studio, Google Colaboratory, Jupyter Notebook, Android Studio, MATLAB, Simulink, Arduino IDE
- **Tools/Skills:** Digital Oscilloscope, Multimeter, Function Generator, Soldering
- **Frameworks:** PyQt5, Tensorflow
- **Operating Systems:** Windows, Linux, Unix

OTHER INTERESTS

Wireless Microcontrollers, Formula 1 Racing, Cooking and BBQ, Basketball, PC Gaming