Lancelot Shih

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Citizen of USA and Canada

Education

University Of Toronto **September 2022 - May 2026**
Bachelor of Applied Sciences in Computer Engineering *St. George Campus*
- 3.3/4 CGPA

Technical Skills

- Python, C/C++, Java, JavaScript, HTML
- Verilog, FPGA
- OpenCV, Tensorflow, YOLOv8, PyTorch
- MATLAB, Simulink
- SSH, PuTTY, Internetworking
- Embedded Linux
- PCB Design/Debugging
- AutoCAD, CATIA, Fusion360

Experience

University of Toronto Electric Vehicle Research **May 2024 – Present**
University of Toronto Power Electronics Lab *Toronto, Ontario*
- Designed interfacing PCB to conveniently connect various battery management signals to a microcontroller running backend algorithm processing of the cell balancing.
- Set up a remote network socket to deploy C/C++ programs under embedded Linux systems in ARM platforms to manage multi-chemistry battery system controllers.
- Designed device tree overlay drivers to adapt micro-controller deployment for CAN bus, SPI, and ADC inputs.

Manufacturing Automation Intern **May 2023 – August 2023**
O-View Technology Co. Ltd. *Taipei, Taiwan*
- Programmed 3-axis camera rig to capture region of interest to feed data to computer vision model.
- Processed image data using computer vision models to detect defective manufacturing samples at 98% accuracy.
- Utilized OpenCV for Python, TensorFlow, and SVM frameworks to create an integrated software pipeline and UI.

Electromechanical Lead **September 2022 – Present**
University of Toronto Solar Racing Team *Toronto, Ontario*
- Developing new low voltage vehicle control system to reduce weight by 70% and power consumption by 70%.
- Developing new vehicle lighting control system to eliminate 67% of the wiring and 40% of the weight.
- Calibrated telemetry system to minimize packet loss by 99% and achieve low latency (30 ms).
- Designed DC/DC power converter to convert 120V to 12V for vehicle's low voltage system using Altium.
- Designed mounting mechanisms for vehicle radio, rear view camera, and GPS tracker box using CATIA and Fusion360.
- Hosted recruitment teaching new members PCB design and communication protocols such as SPI/I2C.

Engineering Academic Mentor **September 2023 – Present**
University of Toronto First Year Office *Toronto, Ontario*
- Aided students by showcasing test taking strategies, study prep tips, and help raise exam scores through 1 on 1 sessions.
- Team marketing content manager, coordinating advisory content and promoting first year academic resources.

Projects

Watercraft Safety System **April 2023 – August 2023**
- Created synthetic datasets using Blender to train machine learning models to detect danger and assist boat operation.
- Tested and implemented models for object and edge detection using the YOLOv8 model.

SSB Radio Demodulator **January 2024 – May 2024**
- Designed a module to decode SSB radio signals into playable audio with 0.5% audio output error.
- Enabled end user flexibility to adjust signal decoding type and volume control.

Home Network Server (In Development) **February 2024 – Present**
- Deploying a home web server to host my own personal website.
- Enabling port forwarding, WOL, SSH, and remote desktop to allow mobile access to greater processing power anywhere.
- Establishing network accessible storage for automatic data security and backup.

Relevant Coursework

Computer Organization **September 2023 – December 2023**
- Applied low level computer architecture concepts such as memory, logic units, and registers to FPGA programming.

Programming Fundamentals (C/C++) **September 2023 – December 2023**
- Utilized algorithms, data structures, object oriented programming, and debugging strategies to create C based programs.