Lancelot Shih

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Citizen of USA and Canada - Seeking Internship Summer 2025

Education

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

Professional Summary

Computer Engineering student with proficiency in Python, C/C++, and embedded systems, with hands-on experience in electric vehicle systems and manufacturing automation. Demonstrated success in developing embedded Linux solutions, designing PCB interfaces, using CAD tools, and implementing machine learning models. Proven leadership abilities as the Electromechanical Lead of my university Solar Racing Team and as an Engineering Academic Mentor, with effective communication skills and teamwork abilities.

Technical Skills and Expertise

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

Experience

University of Toronto Electric Vehicle Research **May 2024 – Present**
University of Toronto Power Electronics Lab *Toronto, Ontario*
- Debugged electric vehicle battery management systems and redesigned microcontroller firmware (C/C++, Python) and GUI software for alternate battery cell configurations.
- Developed interfacing PCB to reliably connect a microcontroller to various battery management signal protocols such as CAN, SPI/I2C, and ADC current sensing.
- Set up a remote network socket to deploy python and C/C++ programs under embedded Linux systems in ARM platforms.
- Developed device tree 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.
- Developed an integrated software pipeline using machine learning (SVM, TensorFlow) and image processing (OpenCV) in python to detect semiconductor wafer manufacturing defects at 98% accuracy.

Electromechanical Lead **September 2022 – Present**
University of Toronto Solar Racing Team *Toronto, Ontario*
- Leading the development of an embedded Linux vehicle control system to reduce weight and power consumption by 70%
- Designed and optimized vehicle lighting control to reduce wiring by 67%, improving overall efficiency.
- 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.
- Mentored new team members in PCB design, CAD practices, 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.

Relevant Coursework

Computer Architecture **September 2024 – December 2024**
- Exploring and simulating high performance CPU architectures and memory systems and discussing multiprocessor design

Operating Systems **September 2024 – December 2024**
- Explored operating system structure, process management, memory management, CPU scheduling, and file systems.