Toronto, ON
winston-sun.github.io

WEIXUAN (WINSTON) SUN

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EMPLOYMENT

Embedded System Engineer (C, Verilog, Tcl, MATLAB), **Analog Devices** **Jul 2020 – Aug 2021**

- Worked on 5G 8T8R ORAN O-RU design and system integration spans from optical interface to transceiver
- Developed hardware, bare metal, HAL embedded software to connect and link up components of the radio chain, involving high-speed data management and manipulation (JESD204C, 10/25G Ethernet, DUC/DDC, Playback/Capture) and communication protocols (SPI, I2C, etc.) to configure clock and transceiver chips
- Designed digital circuit (RTL coding in Verilog) on FPGA and debugged with simulations
- Experiences in schematics review, place route, timing closure, Linux boot up, RF, and system-level debug

Full Stack Software Developer (C#.Net, WPF framework), **Rocscience Inc.** **May 2019 – Aug 2019**

- Integrated Sensemetrics API (TCP connection) and IDS Radar (HTTPS connection) into Slide3 (geotechnical software), fetching and filtering user-selected data through web servers and plotting onto the 3D model
- Developed new UI using WPF for importing and selecting data features and designed the user process flow

Electrical Engineer Intern (Electrical test instruments), **Bekaert Deslee** **Jul 2018 – Aug 2018**

- Troubleshot 200 feeder devices and decreased the discard rate by 30%, saving the company over $10,000

EDUCATION

M.Eng. in Electrical Engineering and Computer Science, University of California, Berkeley **2022 - 2023**

- Focus on Robotics and Embedded Software

B.A.Sc. in Electrical and Computer Engineering, University of Toronto **2017 - 2022**

- Minors in Artificial Intelligence, Robotics and Mechatronics, and Engineering Business CGPA: 3.84

PROJECTS

- **Spam Detection System over multi-FPGA Network** (2022). Designed both the hardware and software system and utilized 3 FPGAs, communicating over the network through TCP/IP. *Verilog, C, Xilinx Vivado*
- **Distributed Systems CRDT Library Design** (2021 – 2022). Designed a CRDT library with functional and performance benchmark to achieve strong eventual consistency and low merge latency. Created a Trello-like project management tool using the CRDT library to showcase the benefit of a decentralized approach. *C++*
- **KUKA Robot Manipulator Control** (2021). Designed algorithms for drawing patterns on paper and motion planning with obstacle avoidance. *MATLAB*
- **TinyML Magic Wand Project** (2021). Implemented keyword spotting and gesture recognition and created an end-to-end pipeline from data collection/pre-processing to model training, converting the model to TF Lite/Micro for deployment on Arduino. *TensorFlow*
- **X-ray Diagnosis on Bacterial and Viral Pneumonia** (2020). Using a convolutional neural network and transfer learning to create a multiclass classification. *PyTorch*
- **Map Application Software Design** (2019). Created higher-level API and developed graphics interface for the Geographic Information System. Found the fastest path to deliver courier packages using weighted A* algorithm and heuristics searches. *C++*
- **Flappy Bird Game Hardware Design** (2019). *C, ARM Assembly, Verilog, Intel Quartus*

LEADERSHIP

- **President, VP Conference** (2019 – 2021). Oversaw the full-scale operation of the club and supported the execution of the club's events and initiatives. Developed project plans and led the execution of the Sustainability Conference with over 300 attendees.

Languages and Technologies

- C; C++; Python; MATLAB; System Verilog; Tcl; Shell Script; Assembly; C#.NET; SQL; R; XML Schema; PHP; HTML
- Version Control; Valgrind; Quartus; Vivado; ModelSim; Simulink; Multisim (SPICE); Eyeshot (3D); gdb server
- FPGA; Function generator; Oscilloscope; Spectrum Analyzer; Multimeter