Berkeley, CA
winston-sun.github.io

WEIXUAN (WINSTON) SUN

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EDUCATION

M.Eng. in Electrical Engineering and Computer Science — **University of California, Berkeley** — **2022 – 2023**
- Focus on Embedded Systems and Robotics — CGPA: 3.95

B.A.Sc. in Electrical and Computer Engineering — **University of Toronto** — **2017 – 2022**
- Minors in Artificial Intelligence, Robotics and Mechatronics, and Engineering Business — CGPA: 3.85

LANGUAGES AND TECHNOLOGIES

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

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 code, 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, DDR 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 and oscilloscopes
- Experiences in schematic review, place & route, timing closure, Linux OS 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

PROJECTS

Ultra-low-power high-dimensional SoC for reconfigurable AI at the edge (C, Chisel, RISC-V) — **2022 – 2023**

Spam Detection AI System over multi-FPGA Network (Verilog, C, Xilinx Vivado) — **2022**
- Implement probabilistic model and hash table on hardware and software, utilizing 3 FPGAs over the network

Distributed Systems CRDT Library Design and Application (C++) — **2021 – 2022**
- Designed a CRDT library with performance benchmark to achieve consistency and low merge latency.
- Created Trello-like project management tool using the library to show the benefit of a decentralized approach

KUKA Robot Manipulator Control (MATLAB) — **2021**
- Algorithms to control the robotic arm for pattern drawing and motion planning with obstacle avoidance

TinyML Magic Wand Project (Python, TensorFlow) — **2021**
- Implemented keyword spotting and gesture recognition and created end-to-end pipeline from data collection /pre-processing to model training, converting the model to TF Lite/Micro for deployment on Arduino

X-ray Diagnosis on Bacterial and Viral Pneumonia (Python, PyTorch) — **2020**
- Using CNN, GAN, and transfer learning to detect lung diseases though X-ray images; achieved 95% accuracy

Map Application Software Design (C++, OpenStreetMap API) — **2019**
- Created higher-level API and developed graphics interface for the Geographic Information System
- Found the fastest path to deliver multiple courier packages using weighted A* algorithm and heuristics search

Flappy Bird Game Hardware Design on FPGA (C, ARM Assembly, Verilog, Intel Quartus) — **2019**

LEADERSHIP

President; VP Conference — **Sustainable Engineers Association** — **May 2018 – May 2021**
- Oversaw the operation of the club and supported the execution of the club's events and initiatives.
- Developed full scale project plan and led the execution of the annual Sustainability Conference with over 300 attendees from universities and industries.