Nora Shao

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Education

University of British Columbia, BASc in Engineering Physics (GPA: 4.30/4.33) Graduating April 2027

- Trek Excellence Scholarship 2022, 2023 (merit-based award offered to the top 5% of undergraduate students), Thomas Beeching Scholarship, Ausenco Scholarship for Women in Engineering
- **Coursework:** Software Construction, Machine Learning in Linux, Analog CMOS Integrated Circuit Design, Digital Systems and Microcomputers, Algorithms and Data Structures

Skills

Software: C, C++, Python, Java, CAN bus/I2C/UART/POE protocol, MATLAB, Linux, Arduino, PlatformIO, STM32CubeIDE, Intel Quartus Prime, PuTTY, TerraTerm, Git, Excel/PowerQuery

Electrical: Altium Designer, PCB Assembly and Testing, Oscilloscope, Logic Analyzer, RapidHarness, LTSpice, Multisim, Sifos PDA-604A

Experience

Electrical Engineering Intern, Motorola Solutions - Vancouver, BC May 2025 – present

- Executed audio loopback testson IP camera's Ambarella CV5 SoC Linux system over TerraTerm's UART serial port interface with ALSA tools, and evaluated signal integrity with FFT analysis in Audacity
- Performed system-level validation on IP cameras, such as seamless power failover tests between POE and auxiliary power, and power consumption profiling with Sifos PDA-604A Load Monitor
- Reworked camera PCB to resolve IR module programming timing issues by replacing high-value resistors to improve signal rise time and ensuring reliable communication
- Deployed and monitored camera burn-in bash script diagnostics for persistent DRAM bit flip errors

Electrical & Firmware Subteam Lead, Formula UBC Racing Design Team Jan 2025 – present

- Leading a team of 6 members in designing and integrating critical electrical modules with a race car, and enabling data collection through AIM EVO5 Datalogger and in-house manufactured wiring harnesses
- Redesigned firmware for the FSAE steering wheel, programming STM32F405 using C++ to add safety functionality (i.e. a gear shifting lock-out system that prevents downshifting at unsafe speeds by monitoring RPM data over CAN bus from ECU Haltech, and a filter for event-triggered module failure messages from in-house Power Distribution Module (PDM))
- Enabled current-sensing in firmware of the PDM PCB to monitor module operation, and integrated feedback signals to the steering wheel
- Updated driver GUI on Nextion-based screen, implementing UART communication with display and I2C communication to LED drivers to update real-time telemetry and RPM shift lights respectively
- Configured IRTS-V3 brake temperature sensor channels from 16-channel to 4-channel output on STM32CubeIDE using STM32F405, reducing CAN bus message congestion to streamline data collection

Electrical Engineering Intern, Ideon Technologies - Richmond, BC Jan 2024 – May 2024

- Collected and visualized data from high-accuracy humidity sensor via I2C-connected ATmega328 and PuTTY interface, and tested and sourced dessicants to reduce PCB errors resulting from humidity in product chamber
- Designed and prototyped a QA device for a core product (underground muon detector) in SolidWorks, sourcing and assembling electrical components via Digikey to reduce product testing time
- Tested and diagnosed PCB and cable issues with a multimeter, documenting issues to develop new manufacturing requirements for reducing defect rates

Data Analyst Intern, Mantaro Capital Corp – Vancouver, BC May 2023 – August 2023

- Provided real-time visualizations of online market performance in an interactive BI dashboard via analysis, transformation, and visualization of data updated from dynamic API data pipeline with Python libraries (pandas, numpy, matplotlib), helping the operations team make product decisions