Deepak Roshan Thiagarajan

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Technical Skills

Languages: Verilog, ARM Assembly, C, C++, Python, Java, Shell Scripting, HTML/CSS
Developer Tools: Altium Designer, CircuitMaker, MATLAB, Simulink, Cadence, GitHub, VS Code, Visual Studio, STM32CubeIDE
Electrical: Microcontrollers (ATmega328P, PIC32, ESP32, STM32); CAN bus, I2C, SPI, UART; Circuit design, Signal integrity debugging
Networking: TCP/IP, UDP, LTE/5G Core, eSIM provisioning; Diagnostic tools (iPerf3, Wireshark)
Fabrication: PCB layout & soldering (reflow & hand), Welding, SolidWorks, 3D Printing

Education

University of British Columbia — Vancouver, BC
Bachelor of Applied Science in Electrical Engineering - 4th Year Student — *Sep 2020 – Present*

Experience

Irrigation Project Lead — Sept 2025 – Present
Engineers for a Sustainable World UBC — *Vancouver, BC*

- Led multi-disciplinary team in developing an intelligent irrigation system using pH, temperature, and light sensors.
- Designed data acquisition systems and control logic for solenoid-based water dispensing mechanisms.
- Developed proof-of-concept prototype for agricultural scalability, optimizing resource efficiency.
- Managed technical documentation and reports for presentation at the MURC Conference.

Electrical Engineering Co-op — Sept 2024 – Sept 2025
Schneider Electric — *Richmond, BC*

- Performed bring-up and validation for inverter and EVDCDC systems, including thermal and grid-following testing.
- Designed and implemented a black start circuit board, significantly enhancing system reliability for AC dispensers.
- Optimized BOMs for bi-directional dispensers to ensure cost efficiency and component accuracy.
- Reviewed SLDs and PCB layouts in collaboration with cross-functional teams to ensure design compliance.

Software Network Engineer Co-op — May 2023 – Sept 2023
Star Solutions International — *Richmond, BC*

- Assembled gNodeB equipment and executed iPerf3 tests to optimize 5G Core network performance.
- Analyzed 4G EPC traffic using Wireshark to diagnose and resolve UE attach and call issues.
- Developed integration software for eSIM, LTE, and 5G core SIM profiles for 25,000+ users.
- Implemented a Java-based GUI application that optimized eSIM profile uploading by 80%.

Software and Electrical Sub-Team Lead — Jan 2022 – Dec 2024
UBC Thunderbikes — *Vancouver, BC*

- Devised rider-motorcycle interfaces for BMS and controllers using CANBus communication.
- Designed motorcycle charging circuits to control throttles and relays with Arduino and STM32 test jigs.
- Formulated battery modules and cooling systems for competitive e-bike racing in New Jersey.

Projects

MOGO: Micro-Optical Geostationary Satellite Observatory | *MDA Space Client* — Sept 2025 – Present

- Designed and hand-assembled a custom power PCB using Buck and Buck-Boost converters for Raspberry Pi and motors.
- Built a 4S3P Li-ion battery pack and charging system engineered for 5 hours of operation at -20°C.
- Integrated an external BMS to provide real-time State of Charge (SOC) and voltage data to a user dashboard.
- Implemented hardware safety protections including over-voltage, over-current, and thermal cutoffs.

Laser Light Show | *ESP32, CPLD, SolidWorks* — Jan 2024 – May 2024

- Designed a custom 4-layer PCB with H-bridges for motor control and a buck converter for power regulation.
- Developed ESP32 firmware to implement a PID controller for stable and precise motor operations.
- Utilized SolidWorks to create a 3D-printed housing, optimizing internal space by 40%.
- Implemented CPLD for digital logic, increasing motor precision control by 75%.