ARYAN ARYAL

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Engineering Co-op Program

EDUCATION

University of Alberta — 2023 - 2027

BSc. Electrical Engineering Co op

Courses: Embedded Systems, Discrete Time Signals and Systems, Electromagnetics, Intro to Microprocessors

TECHNICAL SKILLS

Languages: C, C++, Python, HTML, CSS, Java, LaTeX
Software: Altium, KiCAD, EPLAN, Linux, Git
Hardware: PCB Layout/Design, MCUs, Buck Converters, Li-Po/Ion Batteries
Machinery: Soldering Iron, PCB Mill, 3D Printer, Laser Cutters, CNC Mill, Waterjet Cutter

EXPERIENCE

Electrical & Automation Designer — May 2024 –

Modular Construction Research Group — *University of Alberta*

- Protoyped a CNC machine for precision cutting of styrofoam blocks to increase production for concrete formwork.
- Built Human Machine Interfaces using Vijeo Designer, SoMachine, and custom scripts in Java to incorporate real-time production visualization, critical system alarms, and operator dashboard.
- Configured Ethernet/IP control for servo motor drivers for use in industrial steel and wood panel production.

Electrical Team Member — Sept 2023 –

Autonomous Robotic Vehicle Project — *University of Alberta*

- Created a comprehensive network solution using networking tools(dnsmasq, nftables) to provide wired and wireless connectivity with DHCP, DNS, and internet forwarding which was crucial to a competition environment.
- Led design of a PCBA to test systems functionality for streamlined setup of an autonomous underwater vehicle.
- Redesigned voltage converter PCBA with DC-DC buck converters to step-down voltage for various subsystems.
- Responsible for safe charging, handling and storage of Lithium batteries.

Utilities Infrastructure Engineering Student — Jul 2023 – Aug 2023

City of St. Albert — *St. Albert, AB*

- Conducted comprehensive inspections on water, sanitary, and storm utility infrastructure for repair assessment
- Coordinated project timelines and resources, ensuring on-time delivery and effective stakeholder communication.
- Replaced paper-based inspection methods with digital reporting processes, improving database management and efficiency by ∼50%.

PROJECTS

Personal Website | *Astro.js, HTML, CSS, Javascript* — Mar. 2024

- Developed a mobile-responsive website to house my personal projects and blogs.

Medication Tracking App | *Arduino, C, Python, Google Workspace API* — Jan. 2024

- Worked on a team across 24 hours through the engineering process, from ideation to prototyping.
- Built a medication tracking mobile app integrated with a physical pill box.
- Implemented reoccurring notifications synced with an OLED screen programmed with C on Arduino and ESP8266.

Mechanical Keyboard | *KiCAD* — Dec. 2023

- Designed a keyboard which implements mechanical switches, OLED screen and rotary encoder.
- Integrated a interchangeable Pro-Micro microcontroller to handle N-Key Rollover, screen, and encoder.

EXTRACURRICULAR

Vice President, Communications | *Electrical Engineering Club* — Sept. 2023 - May 2024

- Lead design for merchandise and managed the club discord server for over 280 members

Additional Info | *Licences and Certificates*

- Class 5 Advanced Driver's Licence
- Electrical Engineering Club Certificate in Hardware Design
- Drone Operations Licence