Ryan Huang

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Technical Skills

Electrical: PCB Design - Altium, LTspice Simulations, Oscilloscope, Power Electronics, Sensors
Mechanical: CAD - SolidWorks & Onshape, DFMA, 3D-Printing & Rapid Prototyping, FEA
Programming: C (Firmware/Embedded Systems), C# (GUI), Python (Data Processing & Automation)

Experience

SkyAcres Agrotechnologies **Dec. 2025 - Present**
Mechatronics Engineer *Surrey, BC*

- Built an automated nutrient dosing and electrical conductivity (EC) monitoring system, reducing manual labour by 50% and saving 3+ hours per week through sensor-based control and data logging
- Developed embedded firmware for ESP32 microcontrollers in C using PlatformIO to interface with sensors, pumps, relays, displays, and user inputs, with cloud logging and configuration via Firebase
- Designed mechanical fixtures, enclosures, and assembly jigs in Fusion 360, improving assembly efficiency by 20%
- Created PCB schematics and layouts for new hardware while diagnosing issues related to power integrity, component limits, and signal integrity

Delta-Q Technologies **Jan. 2024 - Aug. 2024**
Hardware Engineer Intern *Burnaby, BC*

- Spearheaded the implementation of strain gauge sensors to assess electromechanical behaviour and enable data-driven design improvements
- Developed and executed validation test plans (thermals, water ingress, single fault, etc.) using sources, loads, thermocouples, and dataloggers to ensure system reliability
- Automated data graphing using Python to reduce manual processing time by 80%
- Diagnosed and resolved root causes using LTspice simulations, oscilloscope signal analysis, and circuit modifications through soldering and reflow techniques for SMD components

entrepreneurship@UBC **May 2023 - Aug. 2023**
Mechatronics Engineer Intern *Vancouver, BC*

- Collaborated with two startups, Verdi and Takachar, to provide mechatronics expertise in an agile environment
- Designed PCB for a 12V PWM fan controller in Altium allowing for reliable control of four high current fans
- Led development of an adapter to read soil moisture sensors and output analog voltage using an ATtiny85 microcontroller, op-amp, 555-timer, and passive components - resulting in 53% cost savings compared to proprietary options
- Programmed a calibration GUI in Python & 3D-printed a jig to reduce calibration time by 83%

Projects

Spray Sense: Automated Agriculture Sprayer | *UBC & Tandem Grove Farms* **Sept. 2024 - Apr. 2025**

- Developed PCB circuitry in Altium for managing: user inputs, ultrasonic sensor outputs, output signals to solenoids, and DC power system (5V, 12V, and 24V)
- Evaluated client's needs for developing a low cost solution to automate agriculture spray equipment and helped coordinate efforts amongst 5 team members

Puck Pal: Automated Hockey Puck Return System | *UBC* **Nov. 2024 - Dec. 2024**

- Designed a 12" rotating platform driven by a NEMA23 stepper motor with a 4:1 gear reduction, custom 3D-printed spur gears, and custom load transfer bearings - allowing for targeted puck return to the player
- Programmed MSP430 firmware in C to control the stepper motor using half-stepping via a DRV8841 H-bridge motor driver

RYOBI Powered E-Bike | *Personal* **Jun. 2022 - Aug. 2022**

- Converted a used bicycle into an e-bike that is driven by a hub motor and powered with a RYOBI 40V battery via a custom 3D-printed adapter - resulting in a low cost, safe, and hot swappable power system

Education

University of British Columbia **Sept. 2020 - May 2025**
Bachelor of Applied Science - Mechanical Engineering - Mechatronics *Vancouver, BC*

- CGPA: 3.80/4.33