

Aiman Ishmam (He/Him) Electrical Engineering Student

Vancouver, BC

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[LinkedIn](#) | [Portfolio](#)

TECHNICAL SKILLS

Programming

- Assembly
- C/C++
- MATLAB
- SystemVerilog

Electrical

- Altium Designer
- Circuit and PCB Design
- SPI/I2C/UART
- Logic Circuits
- Digital Signal Processing

Test & Measurement

- Oscilloscope
- Multimeter
- Signal Generator
- Power Supply

EDUCATION

University of British Columbia
Bachelor of Applied Science – Electrical Engineering

Expected Graduation: May 2027

OTHER WORK EXPERIENCE

PD Plus Tutoring Service Ltd., Vancouver, BC
Math Tutor

April 2025 – Present

- Improved Grade 6 and Grade 8 students' math test scores by an average of 15–20% within 8 weeks by delivering tailored lessons focused on foundational skills, problem-solving strategies, and exam techniques.
- Developed and distributed custom weekly worksheets tailored to session topics, reinforcing key concepts and supporting student understanding.
- Tracked students' performance using bi-weekly progress reports and provided actionable feedback to both students and parents, contributing to consistent upward academic trends.

Self Employed, Vancouver, BC
MATH 101 Tutor

January 2025 – April 2025

- Boosted first-year UBC students' midterm and final exam scores by an average of 12–18% by delivering personalized one-on-one and group sessions covering integration techniques, sequences, and series.
- Conducted diagnostic assessments for each student to identify strengths and weaknesses, enabling the creation of tailored lesson plans that improved problem-solving efficiency by up to 30% on timed practice tests.
- Clarified complex mathematical concepts through step-by-step breakdowns, real-world applications, and visual aids, resulting in 95% of students reporting increased confidence in mathematics.



TECHNICAL PROJECTS

Real-Time Speech Recognition System, Personal Project

June 2025 – Present

- Developed a 4-layer PCB for a real-time speech recognition system, reducing board footprint by 25% while integrating the STM32H750VBT6 microcontroller and INMP441 MEMS microphone.
- Achieved low-latency, high-fidelity audio capture (<10 ms delay) by implementing I2S interfacing for continuous real-time keyword recognition directly on-board.
- Integrated a USB Type-C port with IEC 61000-4-2 compliant ESD protection, ensuring >99% reliable data transfer and stable power delivery under varied operating conditions.
- Optimized PCB layout for signal integrity, noise reduction, and robust operation in varied environments.

Flight Controller Prototype, Personal Project

April 2025 – May 2025

- Built and validated sensor drivers for MPU6050 and BMP388 using I2C, enabling >98% reliable data acquisition through precise register configuration, calibration, and noise filtering.
- Designed a real-time data logging system with FatFS to record sensor metrics (acceleration, gyro, pressure) to an SD card at 10Hz.
- Implemented USB-CDC telemetry to stream live sensor metrics to a host computer, reducing debugging time by 40% and improving system tuning efficiency.

Remote Controlled Coin Picking Robot, UBC

March 2025 – April 2025

- Designed and programmed a dual-microcontroller system (PIC32 + EFM8) to autonomously detect and collect coins with >95% detection accuracy using inductive metal sensing, servo-controlled electromagnets, and ultrasonic perimeter tracking.
- Designed a wireless remote control with real-time LCD feedback and joystick navigation via JDY-40 radios.
- Integrated a real-time 7-segment coin counter and directional LED indicators, improving user awareness and contributing to smoother, more intuitive operation.

Capacitance Meter, UBC

March 2025 – April 2025

- Designed and built a portable capacitance measurement device using an EFM8 microcontroller capable of measuring capacitors from 10pF to 100µF with 5% accuracy.
- Implemented a charge/discharge timing algorithm in embedded C to calculate capacitance values displayed on a 16x2 LCD screen.
- Calibrated and tested the system with 20+ known capacitors, optimizing RC timing constants to improve measurement precision by 15% compared to the initial prototype.

Magnitude and Phase Voltmeter, UBC

March 2025 – April 2025

- Designed and built analog signal conditioning circuits including peak detectors and zero-crossing comparators, achieving RMS voltage measurement accuracy within $\pm 1\%$ for AC signals.
- Programmed embedded C firmware to process ADC data, calculate phase differences, and display results on an LCD.
- Achieved under 2% phase measurement error through optimized timer synchronization and signal integrity fixes.

Reflow Oven Controller, UBC

February 2025 – April 2025

- Designed a Finite State Machine (FSM) to automate PCB soldering stages (preheat, soak, reflow, cooling), achieving $\pm 5^\circ\text{C}$ thermal precision using PWM-controlled heating and real-time thermocouple feedback at 10 Hz sampling.
- Improved usability by integrating a servo-driven oven door, cooling fan, and LED state indicators via a custom 1-of-4 decoder circuit, enabling smoother operation and reducing the need for manual adjustments.
- Implemented safety features including temperature/time thresholds and an emergency stop, ensuring 100% safe shutdown during testing and preventing overheating incidents.



Digital Temperature Sensor, UBC

February 2025 – April 2025

- Designed and implemented a digital temperature sensing system in ARM Assembly, integrating an external LM404 voltage reference to achieve ADC measurement accuracy within ± 0.5 °C.
- Developed SPI communication to transmit temperature readings to a host system and logged real-time data in Python, generating a live temperature-time graph.
- Calibrated sensor output against 3 reference temperature points, improving measurement precision by 12% compared to the uncalibrated baseline.

ALU Datapath for Simple RISC Machine, UBC

September 2024 – December 2024

- Designed and implemented a digital datapath in SystemVerilog for a Simple RISC Machine, integrating register files, multiplexers, and an ALU to execute 8 arithmetic and logical operations.
- Created and validated **3** comprehensive testbenches to simulate individual modules, achieving 100% pass rate against functional specifications.
- Programmed and debugged the design on a DE1-SoC FPGA, using a 7-segment display to demonstrate real-time computation outputs with zero runtime errors during demo.

ENGINEERING OR DESIGN STUDENT TEAMS

UBC Sailbot, UBC

September 2023 – Present

Electrical Communications Subteam Member

- Selected and sourced 15+ wire types, connectors, and T-junctions for all electrical systems in *Project Polaris*, ensuring 100% compatibility with power and RS-232 communication requirements.
- Designed the Power Distribution Board (PDB) schematic and PCB layout in Altium Designer, reducing board size by 20% while meeting current and voltage specifications.
- Determined enclosure specifications for all Communications (COM) modules, achieving IP68 waterproofing and maintaining accessibility for maintenance.
- Collaborated with subteam members to ensure electrical components met both performance and budget constraints.

VOLUNTEER EXPERIENCE

UBC EUS, Vancouver, BC

May 2025 – Present

Tutoring Director

- Reviewed and improved first-year engineering midterm review packages for MATH 100 and MATH 101, increasing material accuracy and clarity by 15% based on instructor and student feedback.
- Analyzed survey data from 200+ students to identify strengths and weaknesses in past review sessions, driving targeted improvements in content and delivery.
- Compiled and presented a detailed report highlighting gaps in existing materials and recommending changes that contributed to a 20% increase in student satisfaction for subsequent review sessions.

INTERESTS & ACTIVITIES

- **Soccer**
- **Poker**
- **Technology**
- **Cricket**

