

Bram J. Banik

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Education

BASc in Engineering Physics - University of British Columbia

Expected Apr 2028

- Dean's List
- 85.3%
- Primary Courses of Interest: ENPH253 (Intro to Instrument Design), MATH255 (Differential Equations), ELEC202 (Circuit Analysis II), MATH217 (Multivariable/Vector Calculus), ENPH259 (Experimental Techniques)

Skills

Electrical: KiCad, PCB Design, Soldering, Filters and Noise Reduction, Debugging

Mechanical: Solidworks, Solidworks Simulation, OnShape, ANSYS, CNC Mill, Laser and Waterjet Cutting, Carbon Fiber Wet Layup and Vacuum Infusion

Software: C, C++, Java, MATLAB, Python, HTML + CSS, Linux, ESP32 freeRTOS, Machine Learning

General: GitHub, Waveforms, Excel, Adobe Illustrator, Adobe After Effects

Experience

UBC Thunderbikes Aerodynamics Team Lead

August 2025 - Present

- Voted in as co-lead for UBC Thunderbikes first foray into the MotoStudent competition
- Preparing for full carbon-fiber fairings and rear-frame redesign
- Outlined training for CAD, CNC, and aerodynamics simulations for all-electric racing motorcycle

Engineering Physics Student Life Coordinator

July 2025 - Present

- Organizing events for the Engineering Physics student body
- Managing a budget of +\$1000 to distribute among both semesters
- Planning on boosting engagement through friendly sports tournaments and trivia nights

UBC Thunderbikes Aerodynamics Subteam Member

September 2024 - July 2025

- Designed and built a carbon fiber gas tank and numerous battery panels for an all-electric motorcycle
- Hands-on experience with wet-layup and vacuum infusion processing techniques

Projects

Fully Autonomous Pet-Rescuing Robot Competition

- Built a robot that successfully drove, detected, and picked up a stuffed pet autonomously
- Utilized custom computer vision model to detect pets, communicating between a Raspberry Pi and an ESP32
- Designed and soldered PCBs for all circuits on the robot, including dual H-Bridges and switch debouncing
- Wrote object-oriented codebase in C++ using freeRTOS to allow efficient time-slicing
- Debugged and handled noise issues from drive motors using shielding and software-based solutions

Automatic Arduino Light Switch

- Designed and 3D printed parts to hold an Arduino Uno board, servo, and an ultrasonic sensor
- Hand-designed a custom rack and pinion gear mechanism in OnShape to flip a light switch
- Developed a better understanding of gear ratios and mating mechanisms in CAD software
- Wrote a program to detect human movement through the ultrasonic sensor and actuate the servo motor

Rainwater Harvester System Simulation

- Developed a large-scale spreadsheet to simulate the intake and power of a rainwater system
- Worked and collaborated with a team of students, organizing clear deadlines and work expectations
- Analyzed the impact of multiple varying parameters, considering both solar and diesel power systems
- Emphasized renewable, efficient energy sources to power harvesting systems