

# AMULYA PATHANIA

Manufacturing Engineering Student

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## TECHNICAL SKILLS

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**Computer Skills:** SolidWorks, MATLAB, ANSYS, Microsoft Office Suite, ClickPLC, VTSscada, RoboDK

**Manufacturing Skills:** 3D Printing, Milling, Lathes, Thermoforming, Casting, Deep drawing, Injection molding, Wet layup, Prepreg, Vacuum infusion

**Programming Languages:** C, C#, Python, Arduino IDE, PLC Programming

## EDUCATION

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**University of British Columbia**

**Expected Graduation: May 2028**

**Bachelor of Applied Science - Manufacturing Engineering**

Co-op: Available for 16 months beginning May 2026

## ENGINEERING DESIGN TEAM

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**UBC Rover**, Vancouver, British Columbia

**September 2024 – Present**

*Mechanical Rover Lab Member*

- Designed a carousel system for precision rotation of multiple liquid solution samples to aid in life-detection testing on the UBC Rover using SolidWorks and 3D printing to prototype and refine for optimal performance
- Leading a small team to manufacture a drilling auger for soil life testing applications
- Designing, machining and assembling a T-slot aluminum frame for Rover lab integration, ensuring structural integrity, precise alignment, and repeatable assembly
- Collaborated across multiple sub teams to troubleshoot design challenges, optimize functionality, ensure seamless integration, and meet project deadlines
- Demonstrated adaptability as a new team member by quickly developing technical skills through practical experience and collaboration

## TECHNICAL PROJECTS

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**RC Car**, University of British Columbia

**September 2025 – Present**

*Designed and fabricated an RC car through multiple manufacturing processes*

- Currently collaborating in a team of seven to research, design, and produce an RC car with manufacturing processes
- Produced aluminum wheels with sand casting and machining, fabricated a thermoformed shell and constructed a composite for a chassis extension
- Prepared a comprehensive technical report detailing design objectives, CAD prototyping, project management with GANTT charts, experimental findings from tensile and stress tests, and manufacturing performance analysis with ANSYS to form conclusions
- Presented design rationale and technical results through an oral presentation to faculty and peers

**Automation & Robotics Systems Lab**, University of British Columbia

**September – December 2025**

*Programmed PLC and HMI control systems for an automated spray-painting robot*

- Developed PLC ladder logic and SCADA HMI to control a pneumatic spray-painting system with Modbus TCP communication and PID-based pressure control
- Designed a user-focused HMI with real-time visualization, setpoint control, and valve actuation to control piston location and valve pressure
- Programmed an industrial robotic pick-and-place task in RoboDK, defining reference frames, motion targets, and Python-based robot commands

**Rainwater Harvesting System for Van Anda**, University of British Columbia

**March – April 2024**

*Addressed water scarcity issues in remote communities*

- Developed and evaluated multiple potential solutions using a Weighted Decision Matrix and a Streamlined Life Cycle Assessment, based on stakeholder needs
- Utilized Excel for system modeling to simulate real life performance, allowing further recommendation for optimal water collection, storage, filtration, pump, and power systems

- Completed an Expression of Interest and presented the final project to peers by defending the system as a reliable and cost-effective solution to water scarcity, and produced a detailed video with specifics

**Adaptive Device: Assistive Mouse Clicker**, University of British Columbia

December 2023

*Designed and presented a user-friendly device for a client with limited finger and wrist mobility*

- Collaborated in a team of six to brainstorm, design, and prototype an adaptive device
- Used a structured design process that included stakeholder/risk analysis and concept evaluation using a Weighted Design Matrix
- Completed a Technical Memorandum that outlined the design process, requirements, and final recommendations

**OTHER WORK EXPERIENCE**

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**Gate Gourmet**, Calgary, Alberta

July 2023 – August 2023

*Kitchen Helper*

- Assembled airline meals for Air Canada and WestJet, adhering to high hygiene standards and safety protocols
- Demonstrated reliability and punctuality by meeting daily production targets

**VOLUNTEER EXPERIENCE**

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**My Best Friend's Closet**, Calgary, Alberta

July 2022 – August 2023

*Garment Preparator*

- Sorted, steamed and prepared donated clothes to empower low-income girls by providing fashionable clothing for a personalized shopping experience
- Upcycled donated clothing by ensuring high quality preparation, contributing to sustainable practices in the community
- Collaborated and communicated to ensure smooth operations and timely completion of tasks

**INTERESTS**

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- Sci-fi Media
  - Enjoy experiencing games, songs, movies and books with futuristic themes such as *Cyberpunk 2077*, *Pacific Rim* and *Neuromancer*
- Space Exploration
  - Fascinated by engineering innovations and advanced space technology, such as rovers, that enable space exploration and a deeper understanding of extraterrestrial environments