SAMRIDDHI MISHRA

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Mechanical Engineering student at UBC with hands-on experience in manufacturing, automation, and mechanical design. Skilled in Python, CAD, and process optimization, with industry experience in aerospace component manufacturing. Passionate about mechanical design and eager to contribute to real-world projects.

SKILLS

Programming & Data Tools: Python, C, Excel Macros, Visual Basic
CAD & Modeling: SolidWorks, Catia V5, FEA (Finite Element Analysis), CAM Tools, XFOIL
Manufacturing & Design: CNC Machining, Tolerancing, NC Programming (Sinumerik 840D SL), SAP HANA
Documentation & Communication: PowerPoint, Technical Reports
Languages: English, Hindi, French

EDUCATION

University of British Columbia, Mechanical Engineering — Expected Graduation: May 2027

- Dean's List 2023-24

TECHNICAL EXPERIENCE

Computational Multiphysics Lab, UBC
Research Assistant — **Oct 2025 - Present**

- Developed a Python-based airfoil optimization workflow coupling XFOIL with evolutionary algorithms, achieving a ~30% increase in the Lift to Drag Ratio at operational Reynolds numbers.
- Researching generative AI-assisted design optimization, integrating ML models into physics-based simulation workflows.

UBC Rocket
Thrust Vector Rocket Mechanical Member — **Sep 2025 - Present**

- Assisting in the design and development of mechanical systems for the team's thrust vectoring rocket, supporting testing infrastructure, control mechanisms, and system integration for controlled descent capabilities.
- Gaining hands-on experience in CAD, CAM, FEA, and CNC machining through component design, analysis, and fabrication for high-performance aerospace applications.

Tata Boeing Aerospace Limited
Automation Intern — **May 2025 - Aug 2025**

- Built a web-based Python framework with Pandas & Plotly to parse and visualize 100k+ lines of SINUMERIK 840D NC code, reducing data retrieval time by 80% and accelerating validation for KUKA robotic drilling cycles.
- Built a VBA-based Excel macro to extract 15+ parameters (Cycle time, Drill length, etc.) from NC files, reducing data retrieval time by ~90% for the robot's drilling cycles.
- Modeled EOAT (End of Arm Tool) rotation using rotation matrices to correct coordinate transformations, improving drill point accuracy by ~50%.
- Optimized 800+ Manufacturing Instruction Sheets (MIS) in SAP HANA, improving process flow and reducing redundancy.
- Conducted dimensional analysis of 50+ CATIA V5 parts; gained experience with Boolean operations and part validation tools.
- Created 6 board-level PowerPoint presentations for Founders Day award nominations from the plant.

UBC Submarine Design Team (SUBC)
Drivetrain Sub Team Member — **Sep 2024 - May 2025**

- Designed a gearbox housing in SolidWorks, optimizing space constraints while ensuring drivetrain efficiency.
- Developed technical drawings, BOMs, and assembly documentation following engineering standards.
- Collaborating on concept generation, prototyping, and testing for drivetrain integration with the submarine.

CERTIFICATIONS

Advanced Geometric Dimensioning and Tolerancing (GD&T) - Y14.5
The American Society of Mechanical Engineers (ASME) — **May 2025**

VOLUNTEERING

Women in Engineering UBC
Interim Co-President (Aug 2025 – Sep 2025); Committee Member & Mentor (Sep 2024 – Jul 2025)

- Mentored three high school students on STEM pathways, applications, and careers.
- Organized networking events with 60+ students, industry professionals, and professors.
- Coordinated logistics and communications for mentorship programs.
- As Interim Co-President, oversaw executive planning, program expansion, and external representation.