

Abhay Chhabra

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Summary

Highly motivated and detail-oriented **Mechanical and Digital Engineer with a proven track record in technical construction project coordination and execution along with using data tools to track key metrics and optimize processes**, seeking to leverage mechanical and data analysis expertise. Proven ability to thrive in a fast-paced, dynamic environment, leading cross-functional teams and accelerating project timelines while maintaining strict regulatory and quality standards. Recognized for leveraging data analytics to drive efficiency and optimize project outcomes.

RELEVANT WORK EXPERIENCE

TC Energy, Calgary, Alberta

Project Coordinator

August 2024 – Present

Project Management Intern – Pipeline Integrity Projects

May 2022 – September 2023

- As a Project Coordinator, I have **supported 50+ pipeline integrity projects** valued at **150M+**, collaborating with **10 Project Managers** and various external construction contractors in the **maintenance of natural gas pipelines and facilities across Canada**.
- Led **application development initiatives** to **automate** and streamline project deliverables by gathering project requirements and implementing digital solutions to **improve tracking efficiency by 50%**.
- Worked closely with the **CER (Canada Energy Regulator)**, ensuring that Operations and Maintenance concerns were adequately addressed by stakeholders, including Indigenous, Land and Regulatory representatives. This included **liaising** with Area Managers and Field Work Planners for permitting to ensure **regulatory compliance**.
- Acted as the **Lead Contact** for the Tube Turn and Nipple Refurbishment program, creating **data analytics** and **bi-weekly reports** for departmental leadership through analysis of **engineering reports** and checklists.
- As a Project Execution Intern, facilitated Value Engineering initiatives by drafting and **submitting Engineering Variances, Construction RFIs and Change Directives** using **Bluebeam and Autodesk Design Review**, resulting in **cost savings of \$200K**.
- Led project meetings with various Stakeholders, coordinated **material and design reviews**, participated in bid evaluations.
- Developed and implemented an automated data visualization tool using **Power BI** to track and update progress of all Canada Gas Pipeline Integrity Projects resulting in streamlined communication between Stakeholders.
- Led a valve replacement preliminary project, worked with **cross functional teams** to facilitate the **scope of work**, created purchase orders and coordinated resources with pipeline technicians to ensure **project completion**.

Multifunctional Engineering, Dynamics, and Automation Lab (MEDAL), Calgary, Alberta

Mechanical Engineering Intern

May 2021-August 2021

- Retrofitted a pellet extruder onto a **3D printer**, capable of printing conductive material for the construction of sensors and **printed electronics**.
 - Researched, drafted models, and 3D printed auxetic material lattices to validate and characterize physical properties.
 - Constructed an amplifier voltage drop circuit to capture real-time changes in resistance of conductive materials undergoing **cyclic bending** using **LabVIEW** and a DAQ device.
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RELEVANT PROJECTS AND EXPERIENCE

Airframe Team Member – Student Organization for Aerospace Research

2022-2024

- **Fabricated and assembled** a hybrid rocket airframe, performing **fiberglass layups** for body tubes, fins, and nose cones to create a reinforced structure that met stringent design constraints.
- **Engineered a testing assembly** from raw materials to assess bond strength of epoxy and fiberglass layups through load testing, demonstrating hands-on construction and fabrication skills.
- Modeled and conducted **CFD analysis** using ANSYS to determine temperature profiles for the rocket's nosecone, informing material selection for effective heat dissipation.
- Prototyped and refined rocket fin designs using **SOLIDWORKS** and carbon-fiber plates, **collaborating with multidisciplinary teams** (propulsion, avionics, payload) to ensure seamless subsystem integration into the airframe.

Research and Data Lead – Mechanical Capstone Project

2023-2024

- Led the development of a **Modular Lab-Scale Wind Turbine Prototype**, taking ownership of electrical and mechanical analysis.
- Conducted comprehensive **electrical analysis** to determine power consumption and battery requirements, designing a **Wheatstone bridge** for data amplification and real-time sensor feedback.
- Performed detailed **mechanical force analysis** (bending moment, strain, stress) and **fluid dynamic analysis** (drag, tip deflection) to optimize the turbine's structural integrity and performance.

SKILLS

Technical Skills

- **Project Management & Design:** SolidWorks, Bluebeam, AutoCAD, Microsoft Project, Excel, ability to read and interpret Mechanical IFC Construction Drawings
- **Programming & Analysis:** Python, MATLAB, LabView, Arduino, Power BI, Power Automate, ANSYS
- **Fabrication & Prototyping:** 3D Printing, Fiberglass Layups, Epoxy Bonding, Prototyping, Circuit Construction.
- **Tools & Systems:** IFC Drawings, Microsoft Office 365 Suite (Word, Excel, OneDrive, SharePoint), Allen Bradley PLC System and Software.

Professional & Soft Skills

- Highly organized and detail-oriented with a proactive approach to problem-solving.
- Proven ability to thrive in fast-paced, dynamic environments while managing multiple tasks.
- Exceptional collaboration and communication skills, with experience leading project meetings and coordinating with diverse stakeholders.

EDUCATION

University of Calgary, Calgary, Alberta

Bachelor of Mechanical Engineering, Minor in Digital Engineering

2019-2024

- Graduated with **Distinction** (GPA: 3.7/4.0).
 - **Relevant coursework:** Mechatronics, Circuits, Materials, Heat Transfer, Thermodynamics, Control Systems, and Machine Component Design. Basic Knowledge of HVAC Design.
 - Selected to represent the Digital Engineering cohort in a week-long trip to South Korea to gain knowledge of machine learning algorithms, AI, and Computer Vision.
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