

Subodh Babu Bhujel

Oxford, OH 45056

Email: Subodh.Babu.Bhujel@gmail.com

Mobile: +1(513)-603-0660

LinkedIn: <https://www.linkedin.com/in/subodh-bhujel/>

Portfolio: <https://subodhbabubhujel.github.io/Portfolio/>

Education

Miami University

Master of Science in Mechanical Engineering; GPA: 3.96/4.0

Tribhuvan University, Institute of Engineering

Bachelor of Engineering (B.E.) in Mechanical Engineering

Oxford, OH

Jan 2022-Present

Dharan, Nepal

Nov 2013- Oct 2018

Professional Experience

Department of Mechanical and Manufacturing Engineering, Miami University

Graduate Student Researcher

Oxford, OH

Jan 2022-Present

- **Introduced a novel 9 DOF human upper extremity exoskeleton rehabilitation robot:** Developed a detailed **3D CAD model** and **prototype** of the robot.
- **Manufactured robot's components using CNC Machine:** Produced CAM models from **SolidWorks**, generated toolpaths, and post-processed; and manufactured robot parts in the **HAAS CNC** machines.

Department of Mechanical and Manufacturing Engineering, Miami University

Graduate Teaching Assistant

Oxford, OH

Aug 2022-Present

- Conducted lab experiments, evaluated lab reports, and graded assignments for the courses: Control of Dynamic Systems, Manufacturing Processes, Mechanical Vibrations, Heat Transfer and Engineering Materials.

Calgen Solutions LLC

Mechanical Design Engineer

Houston, Texas

Jan 2019-Dec 2021

- **ASME Code Knowledge:** Successfully led the design process of multiple precision-engineered pressure vessels according to the codes **ASME Section VIII Division 1** and **ASME Section VIII Division 2**.
- **Calculation/ Analysis:** Orchestrated calculation/ analysis using industry-leading software such as **PV Elite** and **COMPRESS**. Performed significant analyses like seismic, wind, lifting lug, and anchoring.
- **3D CAD modeling:** Developed **3D CAD models** of the pressure vessels along with their internal and external attachments using **Autodesk Inventor**.
- **2D Drafting/ Drawing:** Drafted **2D manufacturing drawings** applying the principles of GD&T using **Autodesk AutoCAD** and **Autodesk Inventor** as per the client's requirement. Reviewed fabrication drawings, assembly drawings, and P&IDs.
- **Bill of Materials:** Created detailed **Bills of Materials (BOM)** and sent to the clients for precise cost evaluation.
- **Aboveground Storage Tanks Analysis:** Pioneered the application of specialized **AMEtank** software for API Tank analyses covering roof design, bottom plate design, and shell thickness calculations, and produced accurate **calculation reports**.
- **Shell and Tube Heat Exchangers:** Executed calculation and analysis of **Shell and Tube Heat Exchangers** utilizing PV Elite.
- **FEA Analysis:** Performed static structural **FEA analysis** of complicated parts of pressure vessels utilizing **ANSYS Workbench**.

Technical Skills

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|--|---|
| • Computer-Aided Design (CAD): | Autodesk Inventor, SolidWorks, CATIA V5, Autodesk AutoCAD |
| • Computer-Aided Manufacturing (CAM): | SolidWorks, Autodesk HSMWorks |
| • Finite Element Analysis (FEA): | ANSYS Workbench |
| • Boiler, Pressure Vessel, and Heat Exchanger: | PV Elite, COMPRESS, HTRI Xchanger Suite |
| • Tank Analysis: | AMEtank |
| • Programming and Simulation: | MATLAB, Simulink, LabView, Python, PyTorch |
| • Prototyping, Machining, and Fabrication: | Vertical Milling machine, CNC Milling machine, CNC Lathe Machine, Lathe, Abrasive Waterjet Machine, Welding, 3D printer |
| • Other: | Robot Operating System (ROS), Linux, MS Excel, MS Word |

Selected Projects

- **Vertical Crude Distillation Tower:** Performed analysis, CAD modeling, and drafting of a 7-foot diameter and 52-foot tall crude distillation tower for a design pressure of FV/50 psi and design temperature of -20/720°F.
- **Fuel Gas Knock-Out Drum:** Led ASME calculation, 3D design, and 2D drafting 4 feet diameter skirt-supported 9 feet-tall knock-out drum for the design pressure of FV/150 psi and design temperature of -20/200°F.
- **Methanol Storage Tank:** Spearheaded API 650 calculation, 3D CAD design, and 2D drafting of 12-foot diameter dome roof tank for 2.5 psi design pressure and -20/120°F.
- **Condensate Stabilizer:** Performed ASME calculation and created manufacturing drawings of a 7-foot diameter and 66-foot tall vessel for the design pressure of FV/400 psi and design temperature of -20/450°F.

Honors and Awards

- Full tuition waiver for MS in Mechanical Engineering from Miami University.
- International Grant-in-Aid from Miami University.
- Summer Research Fellowship from Miami University Graduate School.
- MetLife Foundation Pathways Scholarship Program (during my Undergraduate studies).

Aug 2022- Present

Jan 2022-May 2022

July 2023

2015-2018

Certification

- Certificate for Registered Engineers-Nepal Engineering Council

2019