

AKHIL SINAI BHANGUI

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EDUCATION

Master of Science, Mechanical Engineering
University at Buffalo, The State University of New York
Expected February 2023

- GPA: 3.889/4.0

Bachelor of Engineering, Mechanical Engineering
Goa College of Engineering, Goa, India
August 2017

WORK EXPERIENCE

Graduate Research Assistant, Assistive and Wearable Robotics Lab, September 2022 – Present

Project: *Design of controller for robotic exoskeleton for gait rehabilitation.*

- Designed CAD model of 3-DOF structural mechanism for supporting motor actuation of exoskeleton in Autodesk Inventor, to allow adjusting the motor position in three directions
- Optimized design and tuning of PID Controller to track and regulate motor output voltage, resulting in limiting cable tension error under 5% by leveraging NI-myRIO-1900 and NI LabView.
- Assembled the prototype for exoskeleton with motor; connected sensors with computer and conducted real-time testing; achieved cable tension at 15N providing a sine input from the Controller.
- Generated input set point for PID controller using Force Sensing Resistors (pressure pads) and NI-myrio-1900 to control the motor tension and deliver motion in the exoskeleton to improve user gait pattern.

Design Engineer, 5D Engineering Services, Goa, India: October 2020 – July 2021

- Updated Factory Inspection and Hazardous Area Classification layouts after conducting field surveys of various chemical plant areas as per client requirements in AutoCAD, enhancing safety standards of plant.
- Created and revised Piping & Instrumentation diagrams for chemical process lines as per client requirements in AutoCAD, cutting down modification time for pipelines by 15%.
- Developed structural layouts for installation of industrial equipment such as 1KL capacity process reactors, chemical storage tanks ranging from 100L to 2KL, heat exchangers and motor pumps in AutoCAD.
- Proposed and revised Warehouse Storage layout as per client requirements, resulting in an increase in overall storage area by 10%.

Mechanical Engineering Trainee, Zuari Engineering Services, Goa, India: September 2019 – October 2020

- Designed 200L capacity Hydrophore Pressure Tank, 1KL capacity Ammonia storage tank and Weathertight (all-weather) Hatch Doors as per IRS standards and client requirements for Naval ships in AutoCAD and SolidWorks.
- Managed a team of seven workers for on-site installation of customized retractable Bulwark shields on decks of four Indian Naval ships for Goa Shipyard Limited and achieved completion of project within 80% of planned time.
- Supervised a team of five workers in Non-Destructive testing to detect welding and surface defects in fabricated Pressure tanks and managed refabrication of defected parts to reduce additional defect occurrence.
- Generated Bill of Materials for manufactured products to complete open Tender documents, helping in securing two new clients.

Graduate Engineering Apprentice, Goa Shipyard Limited, Goa, India: January 2018 – January 2019

- Supervised a team of fifteen workers for installation of out-fitting equipment such as engine, transmission system, gauges, and other instruments on ship; delivered completed checklist reports to the Senior Engineers, resulting in improving production time.
- Participated in Non-Destructive tests such as leak test and Dye Penetrant test to identify manufacturing defects in ship hull and created a list of defected items to be refabricated, helping in cutting overall production time.
- Directed a team of five workers to perform pressure testing of valves, flanges, and other piping equipment to be mounted on ship, resulting in enhanced inventory control.
- Executed Quality tests of ship-hull for welding and surface finish defects in collaboration with fellow trainee mechanical engineers; evaluated 5+ defects and suggested alternate methods to reduce defect occurrence by 33%.

SKILLS

CAD Programs: AutoCAD, SolidWorks, Creo Parametric/Pro-E, Autodesk Inventor, Fusion 360, Siemens NX.

Programming Languages: MATLAB/Simulink, C++.

Other Skills: LabVIEW, PLC, Motor Control, 3D Printing, ANSYS, FEA, CFD, GD&T, Arduino, Microsoft Word, Microsoft Excel.