RICHAL BALASAHEB ABHANG

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EDUCATION

University of Pennsylvania, Philadelphia, USA
Master of Science in Engineering, Mechanical Engineering & Applied Mechanics   Aug 2022-Present
Started Fall 2022 Semester
Courses: Advanced Dynamics, Design of Mechatronics System, Foundation of Engineering Mathematics-1

Savitribai Phule Pune University, Department of Technology, Pune, India
Master of Technology in Mechanical and Materials Engineering | CGPA: 9.28/10.00   Jan 2021-Jul 2022
Courses: Advanced Stress Analysis, Computer Aided Engineering, Theory of Vibration and Noise Control

Maharashtra Institute of Technology College of Engineering (MIT COE), Pune, India
Bachelor of Engineering in Mechanical Engineering | CGPA: 8.02/10.00   Jul 2015-May 2019
Courses: Design of Machine Elements 1&2, Manufacturing Process 1&2, CAD drawing, CAD CAM automation, FEA, Product Design and Development, Mechanical System Design, Dynamics of Machinery, Engineering Graphics 1&2

SKILLS

CAD Modelling Software: SolidWorks, Fusion 360, AutoCAD, CATIA
Analysis Software: Matlab, COMSOL, ANSYS, GMAT, WIPL-D, Qblade, GRASS GIS, X'pert
Languages: Python, C++, C, HTML
Other skills: GDnT, Machining, Arduino, Welding, Optical Metallography, SEM, Mechanical testing, 2D drawings

EXPERIENCE

Sung Robotics Lab, GRASP Laboratory, University of Pennsylvania, USA
Research Assistant, MEAM Robotics   Sep 2022-Present
- Helping research in tuneable compliance manipulator in design and material selection aspects under soft robotics

Characterization of Stainless Steel (SS) 316 at Cryogenic temperatures, VIT Pune, India
Research Student, Materials Engineering department   Sep 2021-Jul 2022
- Performed tests like tensile, impact, XRD, SEM, hardness, and optical microscopy to compare different properties of SS 316 at room and cryo temperatures. A few samples were annealed at high temperatures and then cryo-treated to compare properties

Inter-University Center for Astronomy and Astrophysics (IUCAA), Pune, India
Research project student, LIGO-India   Jun 2019-Jul 2022
- Designed and built Single-stage Suspension Training Module based on HAM AUX
- Generated Analytical model in MATLAB for Folded Pendulum low frequency monolithic horizontal Seismometer; developed CAD (SolidWorks 2021) and FEA model (COMSOL) and assembled it with sensors
- Worked on 2D drawings (drafting), planned the procedure for precision machining of parts, designed jigs and fixtures

Kick Robotics, USA
Remote Mechanical Intern   Oct 2020-Nov 2021
- Devised mechanisms for robots assigned with different tasks and challenges; performed FEA of the structures
- Developed CAD models that get 3D-printed and assembled to form the mechanical structure of the robots

PROJECTS

CANSAT Competition 2019 & 2020, USA | *Team Head, Mission Control Engineer*   Nov 2018-Feb 2020
- Engineered a descent control system using autogyro in 2019; headed the fabrication team; customized design for better quality of 3D printed parts; presented the design paper at AIAA student conference at Brisbane

Final year project: Design & Fabrication of Ornithopter | *Design Engineer, Sponsorship Lead*   May 2018-May 2019
- Designed the mechanism of the ornithopter to mimic the action of a bird flying; contributed to the 3D printing of the structure and its integration; played a role in design optimization for light weighting of the robot

ABU Robocon 2018, Pune, India | *Mechanical Engineer*   Jul 2017-Oct 2018
- Robocon is a national-level robotics competition; designed the Autonomous robot and fabricated an Autonomous and Manual robot; gained machining, 2D drafting and welding skills; tested the robots for their structural integrity
- Tested different composite materials like carbon fibre for various parts of the robots for weight reduction

SAE Supra 2017: Formula One Student competition, Noida, India | *Powertrain Engineer*   Aug 2015-Jan 2017
- Performed design calculations and CFD in Ansys for the Exhaust manifold; designed the side panels and the floor of the car; coordinated for fabrication; prepared Cost Report for Statics event; headed Inventory and Car pit team

CERTIFICATIONS

Certified SolidWorks Professional by Dassault Systems   Oct 2019

CONFERENCES & PUBLICATIONS

- Sutar, S. H., Abhang, R., et. al. (2018). *"Smart Exoskeleton Primarily for Light Weighting of Load."* International Journal of Computer Engineering and Applications (IJCEA), 12.0 (Special Issue):1.0–8.0.
- Abhang R., Bhagwat N. (2019). Conference paper on *"Design and Fabrication of Autogyro system for delivery of packages in case of emergencies."* AIAA Region VII Conference, Brisbane, Australia