

# 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: Smart Materials, Nanotechnology, Metal Forming Technologies, Advanced Stress Analysis

### 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: Material Science, Strength of Materials, Engineering Metallurgy, Manufacturing Process 1&2, FEA

## SKILLS

**CAD Modelling Software:** SolidWorks, Fusion 360, AutoCAD, CATIA

**Analysis Software:** Matlab, COMSOL, ANSYS, X'pert, GMAT, WIPL-D, Qblade, GRASS GIS

**Languages:** Python, C++, C, HTML

**Other skills:** GDnT, Machining, Arduino, Welding, Optical Metallography, SEM, Mechanical testing, Cryogenic testing

## 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
- Tested different materials for blade springs and measured the stiffness of those springs
- Worked on the effects of thermal noise of materials for the flexures acting as springs on the performance of Folded Pendulum low frequency monolithic horizontal Seismometer

### Kick Robotics, Maryland, USA

*Remote Mechanical Intern*

Oct 2020-Nov 2021

- Devised mechanisms for robots assigned with different tasks and challenges
- Developed CAD models that get 3D-printed and selected the materials for 3D printing

### Air India, Mumbai, India

*Mechanical Intern*

Jun 2018-Jul 2018

- Trained at the Jet shop, a place where jet engines like GE 90, GE nx, PW 4056 are disassembled and inspected
- Trained at Live maintenance shop for C-check of Boeing 777 aircraft and engine run-up on wings
- Learned non-destructive testing techniques, CNC machining, electro-plating, blade balancing

## 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 additive manufacturing team and managed the inter-department team activities; 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; selected light weight materials for the wings of the robot for light weighting

### 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
- Optimized the parameters for the weight reduction of the robots by selecting lightweight materials having enough strength like composite materials

### 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, selected vibration absorption materials like glass wool for muffler, helped in fabricating carbon fibre car panels

## CERTIFICATIONS

**Certified SolidWorks Professional** by Dassault Systems

Oct 2019