OM ANANT KULKARNI

☎+91 8530983825 | om.kulkarni148@gmail.com | https://omkulkarni01.github.io/Test.html | 12 Jul 2001
GitHub- omkulkarni01 | https://www.linkedin.com/in/om-kulkarni-ok/ | Pune, India

"I am a committed, reliable and self-motivated engineer having strong ability to plan and execute projects with a positive attitude to challenges and opportunities."

Highlights

- Enthusiastic learner of robotics and mechanical engineering with a keen interest in the space tech industry.
- Completed Bachelors in Mechanical Engineering as Major and System Engineering as Minor from PCCOE, Pune with distinction.
- Worked as a research intern at ISRO-SAC.
- Part of the team which develops an autonomous robotic systems in ABU Robocon competition and secured AIR 3 in year 2022.
- Filed a patent application for final year project and also received the most commendable project award for the same.

Education

Pimpri Chinchwad College of Engineering, Pune
(Savitribai Phule Pune University) **2019-2023**
Bachelor of Engineering
(Major- Mechanical Engineering, Minor- Systems Engineering).
GPA: Distinction (8.02/10.00)

Working proficiency

Software: ROS, SolidWorks, HyperMesh, Ansys, MATLAB, Simulink, Adams, CopelliaSim, Arduino, LATEX

Hardware: Jetson Nano, Arduino, Raspberry Pi.

Programming: Python, MATLAB, C, C++.
Fabrication: Composites, 3d printing

Experience

Indian Space Research Organization's Space Application Centre (ISRO-SAC) | *Research Intern* **Jan 2023 – Jun 2023**
Location: Ahmedabad, India
Guide – Shri. Prempal Kumar (Sci/Engr -SD)

- Main research is focused on the **design and automation of precision alignment mechanisms for ground Manpack Antenna used in Military SATCOM** and **development of deployment structure for flexible antennas** used in various space applications like GSAT's. (*Details of the project are not allowed to be share in detail according to the policy of the organization)
- Along with that I got the fruitful learning experience through different subtasks performed in entire duration of internship, which includes performing practical studies on mechanics of different composites used in various space applications, testing of the developed components made of composites, performing FEA (using HyperMesh, Abaqus, etc.) on small systems used in different projects (Like GSAT, CY3, INSAT, etc.) and many more.

Team Automatons - ABU-ROBOCON | *Team member, ROS Engineer* **May 2021 -Oct 2022**
Location: Pune, India

- Worked on the development of ROS packages for autonomous navigation of the four-wheeled Omni drive and the four wheeled swerve drive used in ABU-ROBOCON competition.
- Performed different types of analysis on various mechanisms designed with the help of CAD software such as SolidWorks, Fusion 360 using Ansys (FEA), MATLAB, and ROS. Along with that got the wonderful chance to improve my other technical abilities and get incredible teamwork experience.

Yantra byte Foundation | *Machine learning Intern* **Nov 2021 -Jan 2022**
Location: Delhi, India

- It was a 2 month machine learning internship where I learned machine learning in depth and also develop a project of Ml based Travel Planner.

Academic projects

Autonomous Agribot for weed removing purpose (AWR) | ROS, Ansys, Image processing, Arduino, SolidWorks **Oct 2022 -Jun 2023**

Project type: Final year research project (Developed both Simulated & Hardware Model)

- AWR utilizes an agile robotic drive, which autonomously navigates in the field according to the GPS, IMU sensor data combined using sensor fusion techniques with the help of Robot Operating System (ROS) for precision agriculture. The robot is supposed to roam the field independently, locate and eradicate weeds with a mechanical weeding tool, and do so without harming the crops.
- **We are able to generate a funding of Rs1, 30,000/- through the institute's seed funding program. Selected for presentation in front of Union and State Ministry officials from the institute. Along with that a patient filing application (202321032646) is done for the project. More details** available here

Autonomous navigation of swerve drive by using Robot Operating System (ROS) | *ROS, Arduino, MATLAB* **Oct 2021 -Apr 2022**

Project type: Team project for ABU-Robocon (Developed both Simulated & Hardware Model)

- It is a team project on which we develop an autonomous 4 wheeled swerve drive which can navigate autonomously in varied environment without any kind of human support.
- Here I developed an ROS package and performed its hardware interfacing with the designed swerve drive to navigate according to the sensor data obtained from rpLidar A1 and depth camera sensors.

Autonomous Oil Spill Collector (AOSC)| Oleophilic Technology, ROS, SolidWorks **May 2022 –Sept 2022**

Project type: Personal Study Project (Developed a simulated model)

- AOSC is designed to autonomously detect and collect the oil spilled on the water surface. It uses fusion of multiple technologies for identifying and collecting the oil spills using belts made up of Cellulose based K-SORB's Hydrophobic Fabrics.
- A simulation of navigation is performed using ROS and external flow simulation is performed to analyze the stability of developed CAD model of the entire AOSC system. Presented in Aakruti and Dare to dream competition conducted by Dassult Systems and DRDO respectively. More details available here

Machine learning based holiday trip planner | Machine learning, Python **Nov 2021 -Jan 2022**

Project type: Internship project done at YBIF

- In this project I have used the datasets available on the internet especially on sites like "www.kaggle.com" to predict the best route and price of transportation and also predicted the best hotels at that particular locations. More details are available here.

Basic IoT projects | IoT, Industry 4.0 **Jul 2020 - Dec2021**

Project type: Personal DIY projects

- Done basic IOT projects related to daily life industrial and general problems which I have uploaded on my YouTube Channel ⊕

Certifications and competitions

Certifications

- CSWA-Mechanical Design by Dassault Systèmes
- Solidworks Assosiate Additive Manufacturing by Dassault Systèmes
- SOLIDWORKS 2022 Essential Training by LinkedIn Learning
- Google Cloud Certifications
- ROS (Noetic,Melodic,Kinetic) by Udemy
- Image Processing with MATLAB – MathWorks
- "How to design Mars Rover" Workshop at IIT Madras
- Drive link for all documents Click here

Competitions

- ABU Robocon 2022 & 2021
- Autodesk Industry Design Problem Challenge by Shaastra IIT Madras and Autodesk
- E-Yantra Robotics Competition 2022 by IIT Bombay (Second Stage cleared)
- Aakruti 2021 and 2022 by Dassult Systems(Reached Presentation round)
- Dare to Dream 4.0 by DRDO
- MathWorks Mini Drone Competition 2021

Publications and awards

- **Received a "Most Commendable Project" Award in Kshitij 2.0.**
- **Rank 3 and 4 (ABU-ROBOCON 2022 & 2021) among 150 teams in India.**
- **National Finalist at Autodesk Industry Design Problem Challenge by Shaastra IIT Madras and Autodesk**

Languages

- **English (Professional Working Proficiency)**
- **Marathi (Full Professional Proficiency)**
- **Hindi (Full Professional Proficiency)**
- **German (A1 Level)**

Interests

- **Robotics**
- **Mechanical Engineering**
- **Aerospace Engineering**
- **Astronomy**
- **Chess**
- **Cricket**
- **Badminton(Division and district Champion)**