

Sagar Chotalia

Ganesh Dham Society, Mulund East, Mumbai-400081

+91 9867492184 | sagarchotalia2@gmail.com | [LinkedIn](#) | [GitHub](#) | [Personal Website](#) | DOB: 11/12/2002

OBJECTIVE

A diligent and meticulous student with the ambition to work at the forefront of technology, expand my skills and solve problems in the field of Robotics by performing world-class research and contributing to the industry.

EDUCATION

Veermata Jijabai Technological Institute(VJTI) <i>Bachelor of Technology in Electronics and Telecommunications Engineering</i> <ul style="list-style-type: none">Cumulative GPA: 8.56/10	2021 - 2024 Mumbai, India
Arya Gurukul International Junior College <i>Maharashtra State Board</i> <ul style="list-style-type: none">HSC (Grade 12): 83.84%	2019 - 2020 Navi Mumbai, India
D.A.V. Public School, Airoli <i>CBSE Board</i> <ul style="list-style-type: none">SSC (Grade 10): 95.8%	2012 - 2018 Mumbai, India

RESEARCH EXPERIENCE

Upcoming Research Intern <i>Stanford-SLAC</i> <i>Dr. S.R. Wagh, Dr. Ragini Meshram</i> <ul style="list-style-type: none">Aim: To perform research in the fields of Autonomous Navigation and SLAM, using Deep Learning and Reinforcement Learning.	
Research Intern <i>CSIR-NAL</i> <i>Dr. Omkar Halbe</i> <ul style="list-style-type: none">Performed research under the CSIR-National Aerospace Laboratories in the Flight Mechanics and Control Division under the guidance of Dr. Omkar Halbe.Studied the extensive ArduPilot architecture and code base in depth. Replicated the logical flow in Simulink.Created a custom controller for a high-altitude glider in Simulink, complete with FBWA and Manual modes.Implemented a Robust PID controller for stabilization of roll, pitch and yaw.	June 2023 – Aug 2023
Research Intern <i>IISER Bhopal</i> <i>Dr. P.B. Sujit</i> <ul style="list-style-type: none">Read research material and delivered presentations based on NeRFs, incremental Signed Distance Fields(iSDF), Obstacle Avoidance algorithms and Potential Fields. Coded a Model Predictive Controller for a mobile robot in MATLAB.	Oct 2022 – Nov 2022

EXPERIENCE

Google Summer of Code <i>OpenAstronomy</i> <i>Mentor: Erwan Pannier</i> <ul style="list-style-type: none">Tasked with tweaking and improving the performance of the RADIS codebase(Now in NumFOCUS).Worked on the existing memory bottlenecks and reduced calculation times by caching various parameters to improve performance. Set up memory-performance benchmarks for debugging and maintenance.Implemented a "chunk" feature in the code, allowing a drastic reduction in RAM usage during large computations, over 75% in some cases.	Apr 2022 – Sep 2022
Summer Intern, e-Yantra Labs <i>IIT Bombay</i> <i>Dr. Kavi Arya</i> <ul style="list-style-type: none">Built an open-source, off-the-shelf Autonomous Nano Drone from scratch.Designed a custom autonomous control system using PID, used an on-board flight computer (Raspberry Pi 0).Localised the drone in an indoor environment using Optical Flow sensors and WhyCon (a cheaper alternative to VICON). Our work was crucial for conducting the eYRC competition in 2022.	June 2022 – July 2022

PROJECTS

- Synchropter UAV Designing** | *ROS, Gazebo, Redhawk Linux* February 2023 – Present
- Developing a Terrain Collision Avoidance System(TCAS) and onboard vision system with Object Detection and autonomous landing capabilities, integrating with the electronic onboard components, such as a Flight Computer(NVIDIA Jetson) and ruggedized sensors.
- SLAM(Simultaneous Localisation and Mapping)** | *ROS Gazebo, Turtlebot3* April 2022 – October 2022
- Studied various SLAM concepts and techniques, including Occupancy Grid Maps, Locomotion and Navigation.
 - Coded the **Kalman Filter** and **EKF-SLAM** on a mobile robot.
- Pick and Place Bot using Bin Packing** | *CoppeliaSim* September 2021 – October 2021
- Simulated a gantry system that would detect boxes placed on a conveyor, pick and place them in a container of known dimensions according to a 3D Bin Packing algorithm using Python API in CoppeliaSim.
 - Got familiar with **Inverse Kinematics** and **OpenCV** to detect the object size.
- e-Yantra Robotics Competition** | *IIT-Bombay* October 2021 – March 2022
- Won the **4th Prize** in our Theme, "Functional Weeder", out of **250+ teams globally**.
 - Designed and constructed a **robotic 3-DOF manipulator**, using it to pick and place plant stalks.
 - Ideated a **novel mechanism** to drop "seeds" accurately from a specific height and distance, and worked with **Raspberry Pi 3** and various other hardware components and helped in accurate line-following and debugging.

TECHNICAL SKILLS

Languages: C++, C, Python
Developer Tools: Linux, Git, Bash
Libraries: OpenCV, NumPy, Matplotlib, Pandas, Vaex
Simulators: CoppeliaSim, Gazebo, RViz, MATLAB, Simulink

POSITIONS OF RESPONSIBILITY

- Society of Robotics and Automation** | *Core Member and Lecturer* September 2021 – Present
- Mentored four students on two different projects on Control Systems and SLAM to completion.
 - Involved in the organization and overseeing of various key events. Attended various workshops conducted by the club in FY, on various different domains including **Computer Vision, Robotics and Embedded Systems**.
 - Taught functions in Python to 150+ attendees of SRA's **PIXELS** workshop.
 - Helped in the design and conducted assembly of a robotic manipulator in SRA's flagship **MARIO** workshop.

COMMUNITY

- Project Mumbai** | *Volunteer* August 2023 – Present
- Volunteered at Jallosh, which is a monthly beach-cleaning initiative that takes place all over Mumbai. The collected plastic waste is recycled.