Alvin Isac PREMSUNDER

(+33) 780748341 (France) / (+91) 9444114311 (India) LinkedIn GitHub

alvinisac3399@gmail.com / alvin-isac.prem-sunder@eleves.ec-nantes.fr

Nantes, France | Work Authorization: APS (France)

Robotics engineer with hands-on experience in ROS2, control systems, and aerial robotics. Skilled in C++, Python, and real-time robot simulation (Gazebo, PX4). Experienced in UAV control and autonomous system development. Open to immediate opportunities in robotics, control, or automation engineering roles worldwide.

Info:

- Age – 26
- Bachelor
- Recent Graduate

PROGRAMMING:

- C++
- PYTHON
- MATLAB/SIMULINK

LANGUAGES:

- English - Professional
- Tamil - Native
- French - A1
- Italian - A1

SKILLS:

- Attention to Detail
- Performance Optimization
- Fault Diagnosis & Recovery
- Independent & Self-Driven

ACHIEVEMENTS:

- **Consortium Scholarship** –awarded a scholarship for the (EMARO), covering €5,000 2024-2025.
- 1st Place in college level chess tournament, awarded trophy by college management-2021

Academic & Technical Projects:

Graduate Researcher @Genoa Robotics and Automation Laboratory (Feb-2025 – Oct 2025)

- ***Supervisors: Prof.Marco Baglietto & Dr.Andrea Delbene (University of Genoa, Genoa, Italy)***
- Developed a new fault-tolerant **MPC** controller performs aggressive stabilization up to **90%** immediately after one UAV failure, followed by precision trajectory tracking of remaining UAV, using **full nonlinear dynamics and elastic cable tension modeling**.
- Master Thesis titled **"Aggressive Maneuver Planning and Control of a Multi-UAV and Payload System after a Failure"**(Link)
- **Tools: ROS2, PX4, Gazebo, MATLAB/Simulink, CasADi, IPOPT, QGroundControl (QGC), Python, C++, Linux, LaTeX**

Autonomous Navigation and Aruco Marker Detection System (Jan 2025)

- ***Supervisor: Prof.Carmine Recchiuto (University of Genoa, Genoa, Italy)***
- Created a 2D occupancy grid map using **SLAM** with LiDAR sensor then implemented **Nav2 navigation stack** with AMCL localization for autonomous waypoint navigation to detect the Aruco marker using OpenCV2 successfully validated on both Gazebo simulation and physical robot.
- **Tools: SLAM Toolbox/Cartographer, Nav2, AMCL, Gazebo, LiDAR, OpenCV2, Python, Docker, Rviz2, TF Transformations**

ROS1 to ROS2 Migration of TurtleBot2 (Real Robot) (May 2024)

- ***Supervisor: Prof.Olivier Kermorgant (École Centrale de Nantes, Nantes, France)***
- **Successfully Migrated** a TurtleBot2 from embedded laptop ROS1 to ROS2 (Humble) on a Raspberry Pi 3+ and corrected URDF/Xacro robot descriptions, precisely aligning Kinect and Hokuyo LiDAR frames aligning with real robot in Rviz for autonomous navigation.
- **Tools: ROS2 (Humble), ROS1, Raspberry Pi 3+, URDF/Xacro, Rviz2, Gazebo, Packer, Embedded Linux**

Education:

European Master's in Advanced Robotics (Erasmus Mundus Joint master's degree)

- **University of Genoa (M2) Genova, Italy (2024 – 2025)**
- Relevant Courses (M2): Machine Learning, Experimental Robotics Laboratory, Smart Coupled Systems &Actuation, Social Robotics, Soft Robotics, Biomedical Robotics, Trustworthy AI for Robotics
- **École Centrale de Nantes (M1) Nantes, France (2023-2024)**
- Relevant Courses: ROS2, Robot Programming, Control Systems, Artificial Intelligence, Computer Vision, Optimization Techniques, Dynamic Modeling
- **Final Grade – 8.8/10 CGPA**

Bachelor's Degree in Mechanical Engineering

- **Anna University Chennai, India (2017 – 2021)**
- Relevant Courses: Kinematics of Machinery, Fluid Mechanics, Thermodynamics, CAD/CAM, Control Engineering
- **Final Grade – 7.5/10 CGPA**

Training & Certifications:

Control System UAV (3D Dynamics & Control)	**Udemy-Sep-2025**
Ros2 Slam & Navigation	**Udemy-Nov-2024**
Control Design with Simulink	**Mathworks-Nov-2024**
Advanced Learning Algorithms	**Coursera-Jan-2024**
ROS2 Foxy & Humble	**Udemy-April-2024**
Supervised Machine Learning: Regression and Classification	**Coursera-Dec-2023**
Complete CATIA V5 Training	**Udemy-Feb-2023**