

PEDRO LIMA

AEROSPACE ENGINEER

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EDUCATION

Master of Science - Aerospace Engineering
Instituto Superior Técnico - IST
Sept 2019 – Jul 2022 Lisbon, Portugal

Master of Science - Space and Astronautical Engineering - Erasmus
Università degli Studi di Roma "La Sapienza"
Feb 2020 – Aug 2020 Rome, Italy

Bachelor of Science, Aerospace Engineering
Instituto Superior Técnico - IST
Sept 2016 – Aug 2019 Lisbon, Portugal

TECHNICAL SKILLS

CAD

SolidWorks | Siemens NX | Ansys

Programming

MATLAB | SIMULINK | C | C++
Python | ROS2 | OpenCV | Julia

Software

LaTeX | Gazebo | Excel

HONORS & AWARDS

Academic Merit Prize - 2019/2020
Instituto Superior Técnico - IST
Awarded academic merit prize by the university of Lisbon.

CERTIFICATIONS

Python for Computer Vision with OpenCV and Deep Learning
- Aug 2023

ROS2 C++ Robotics Developer Course
- Sep 2024

LANGUAGES

English - Proficient
Portuguese (Portugal) - Native
Italian - Intermediate
French - Beginner

WORK EXPERIENCE

AIRSHIP Project

Trisolaris Advanced Technologies

Apr 2023 – March 2025 | Lisbon, Portugal

AIRSHIP is a Horizon Europe-funded project developing a new type of efficient, autonomous, and zero-emissions wing-in-ground vehicle for transporting people and goods quickly, safely, and cost-effectively across large bodies of water.

The engineer responsible at Trisolaris for the development of:

- GNC - Creating a MATLAB/Simulink framework for modeling the dynamics of flying in ground-effect, meant for testing and validating different control and state estimation strategies, such as LQR, L1 adaptive control, reinforcement learning-based control and EKF/UKF type estimators.
- Systems engineering - Overseeing the integration of the full-scale prototype wing-in-ground vehicle's mechanical structures, propulsion, electrical components, sensors, and software systems.

SEAWINGS Project

Trisolaris Advanced Technologies

Apr 2023 – March 2025 | Lisbon, Portugal

SEAWINGS is a defence project funded under the European Defence Fund, that is developing an innovative wing-in-ground UAV designed to operate in the sea/air interface to increase strategic preparedness and perform defence-related operations and missions in Europe.

The engineer responsible at Trisolaris for the development of:

- Secure communications - Utilizing the MAVLink protocol, integrating PX4 for flight control, ROS2 for real-time data handling, QGroundControl for mission management, and Gazebo to create a Software-in-the-Loop (SITL) environment for simulating and testing the encryption protocols.
- Mission management interface - Implementing custom modifications to QGroundControl using the QT framework to adapt the software to the project requirements. This includes changes to the user interface, adaptation of mission planning features, and integration of the secure MAVLink communication protocol.

Masters thesis on an air-bearing testbed for CubeSats

Instituto Superior Técnico | Final grade: 19/20

Apr 2021 – Jul 2022 | Lisbon, Portugal

Developed an active mass balancing system with 3 sliding masses for an air-bearing-based spacecraft attitude simulator to minimise the gravitational torque generated by the offset between the centre of rotation of the platform and the centre of mass of the system, thus enabling the testbed to simulate a frictionless torque-free space-like environment. Two control algorithms were developed to compensate for the position of the centre of mass: a PID controller and an extended Kalman filter (EKF) with feedback action of the estimated parameter. Simulations and experiments were conducted to confirm the effectiveness of the developed control algorithms.