

# Eduardo Eiras de Carvalho

linkedin  
google scholar

Email : dueiras@gmail.com

Mobile : +55 1195629-6704

github : dueiras

## EDUCATION

---

- **Politecnico di Torino** Turim, Italy  
*Double Degree in MSc. Mechatronics Engineer; GPA: 103/110*  
Sep. 2020 – Jul. 2022
- **Polytechnic School of USP** São Paulo, Brazil  
*Bachelor of Engineering in Mechatronics; GPA: 7.3/10.0*  
Mar. 2017 – Jun. 2023

## EXPERIENCE

---

- **Fundação Estudos do Mar (FEMAR)** Rio de Janeiro, RJ  
*Robotics Engineer R&D*  
Jul 2023 - Present
  - **Development of the Autonomous Surface Vehicle for the Brazilian Navy:**
  - Developed and tested Control Laws including PID and NLMPC
  - Implemented System Identification and Modeling techniques to improve simulation and control
  - Conducted navigation and control script testing on simulation and real speed boats
  - Implemented and tuned real-time object detection and tracking using OpenCV and YOLO to enhance obstacle avoidance
  - Developed software for sensor reading and hardware integration in C++ using ROS2
  - Designed autonomous behaviors and Return to Home using MOOS-IvP
  - Guided and mentored two interns
  - Research and implementation of papers
- **Visagio Consultant** São Paulo, Brazil  
*Data Scientist Intern*  
Nov 2022 - Mar 2023
  - Tuned optimization and machine learning models to help a client optimize store and seller organization, maximizing sales and minimizing transportation costs
- **Visagio Consultant** São Paulo, Brazil  
*Data Scientist Intern*  
Summer 2020
  - Developed machine learning models for customer clustering and action prediction
  - Improved in 15% prediction of client actions using Random Forest

## PUBLICATIONS

---

- **IFAC Conference on Control Applications in Marine Systems, Robotics and Vehicles:** Paper titled "Towards Autonomous Control System in Brazilian Navy's USV-Lab using MOOS-IvP framework" at the 2023 IFAC-CAMS, focused on system integration and control parameter tuning, contributing with the methodology and technologies to develop an autonomous speed boat

## PROJECTS

---

- **Master Thesis:** Developed algorithms for path planning and obstacle avoidance in autonomous drones using reinforcement learning, demonstrating an increase in robustness when testing in new environments when comparing to traditional training techniques
- **Drone Racing:** Implemented control algorithms and computer vision techniques for drone trajectory storage and image collection using ROS and Gazebo at DRAFT, autonomous drone group at Politecnico di Torino
- **1st Place Hackathon:** 2020 Datathon USP X UFMG for predicting next year sales. Developed predictive models for sales forecasting, achieving most accurate results among 20+ university teams

## PROGRAMMING SKILLS

---

- **Languages:** Python, C++, C, Matlab
- **Technologies:** ROS2, Gazebo, Deep Learning, Reinforcement Learning