



## CONTACTS

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Andrea Pagnini

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## SKILLS

C Language 5+ yrs

Python 3+ yrs

C++ 3+ yrs

ROS/ROS2 2+ yrs

MATLAB/Simulink 4+ yrs

EAGLE of Autodesk 2+ yrs

LTSpice/PLECS 2+ yrs

Creo Parametric - CAD 3+ yrs

Git 3+ yrs

LaTeX 3+ yrs

# ANDREA PAGNINI

Automation Engineer - Control Theory and Control Engineer

## PROFILE

PhD Researcher at the Inria Centre at Université Côte d'Azur, France. Experienced in Electronics, Control Theory, AI, and Robotics, with a solid academic and technical background. Passionate about AI and Advanced Control for autonomous systems and robots, with a focus on UAVs and AGVs.

## WORK EXPERIENCE & INTERNSHIPS

### PhD Researcher

Centre Inria d'Université Côte d'Azur - Nice, France

Mar 24 - Sept 24

PhD researcher in the ACENTAURI team, working on a PhD project titled: *Efficient Optimal Sensor-Based Control of Aerial Drones*.

### Master Thesis Internship

Robert Bosch GmbH - Stuttgart, Germany

Mar 24 - Sept 24

Master Thesis Internship on Reference-tracking Model Predictive Control for Highly Automated Vehicles, studying the application of MPC technique in safety-critical applications such as autonomous driving.

### Technologies include:

- Python and MATLAB software development
- CasaADi and ACADOS solver for Optimal Control
- Model Predictive Control and Optimization algorithms

### Intern at Laboratory of Automation and Robotics

LAR - University of Bologna - Bologna, Italy

Dic 23 - Mar 24

Intern for the Robotic Dog Challenge at the Laboratory of Automation and Robotics (LAR) for the European Robotic Forum (ERF) 2024

- Development of a navigation algorithm for a quadruped robot, able to explore an unknown environment and retrieve specific objects
- Simulation of a complex robotic system in ROS
- Implementation on a real quadruped robot at ERF2024 (with NVIDIA Jetson)

### Technologies include:

- Git and Docker
- Ubuntu and ROS, including Gazebo, RVIZ and RQT
- C++ and Python software development

# LANGUAGES

English  
CAE Certificate

Italian  
Native Language

# HONORS & AWARDS

## Award for Outstanding Graduates 2021-2022

Public Recognition of merit for outstanding graduates in the a.y. 2021-2022 at the University of Bologna.

## Merit Award Student 2020-2021

Winner of the Merit Award Study Grant for the best Students in each academic discipline of the University of Bologna.

## Monaco Energy Boat Challenge - MEBC

Winner with UniBoAT of the MEBC, Energy Class, in 2021 (as team member), 2022 (as Embedded Systems Division Manager and Pilot) and 2023 (as Embedded Systems Division Manager and Team Liason)

## Math and Reality

First place at the Italian National Mathematical Modelling competition, *Math and Reality*, held by the University of Perugia in 2018/2019, in the Advanced Section (excellence recognized by INDIREE)  
On the Podium of the same competition (Base Section) in 2016/2017

## Embedded Systems Division Manager UniBoAT - Bologna, Italy

Gen 22 - Oct 23

Head of Embedded Systems department at UniBo A.T.  
The work involves the management of department, maintenance of all embedded systems and electronics boards developed in the project.

- Support in an  $H_2$  Fuel Cell's Embedded Controller and DCDC realization
- Development of an Embedded Controller for an Autonomous steering wheel (Bachelor Thesis) and support in the development of an Obstacle Avoidance System for ADAS (with features of AI and Computer Vision)
- Design of High Voltage Battery pack BMS (2x 48V Li-Ion Series Segments)
- Handling partnerships with the main electronics sponsors and providers, as ST-Microelectronics, Harwin and Alma-Automotive.

### Technologies include:

- PCB design with EAGLE of Autodesk
- STM32 SW development in C
- Can Bus Communication protocol

## Powertrain Division Member UniBoAT - Bologna, Italy

Oct 20 - Gen 22

Member of Powertrain department at UniBo A.T., working on Powertrain solutions for a fully electric catamaran. (Energy storage via Hydrogen, Li-Ion Battery Packs, PV panels)

# EDUCATION

## PhD Student Université Côte d'Azur - Nice

Dec 24 - Nov 27

PhD Student at the STIC Doctoral school (Sciences et Technologies de l'information et de la communication).

## Master Degree in Automation Engineering (LM-25) Alma Mater Studiorum - University of Bologna

Sep 22 - Oct 24

### Graduation Mark: 110/110 cum Laude

Master Degree in Automation Engineering, with in dept focus on Robotics and Autonomous Systems, Artificial Intelligence and Control Theory  
Thesis in Optimal Control about: *Reference-tracking Model Predictive Control for Highly Automated Vehicles*.

## Bachelor Degree in Automation Engineering (L-8) Alma Mater Studiorum - University of Bologna Tongji University - Shanghai

Sep 19 - Oct 22

### Graduation Mark: 110/110 cum Laude

Double degree program in Automation Engineering (AlmaTong Program) between University of Bologna and Tongji University of Shanghai. Thesis in Control Systems Technologies about: *HW and SW Design of an Embedded Controller for a boat's autonomous steering wheel*.