

Experience

- Nov 2024 **PhD Student**, SCUOLA IMT ALTI STUDI LUCCA, Lucca, Italy.
Present Researching learning-based methods for nonlinear Model Predictive Control (MPC) problems
- Developing novel algorithms combining machine learning with optimal control theory
 - Implementing and validating control strategies through simulation and experimental platforms
- Mar 2024 **Modelling and Simulation Engineer**, SKYDWELLER AERO, Madrid, Spain.
Aug 2024 Developed simulation environment for testing equipment used in solar-powered aircraft
- Leveraged MATLAB and Simulink to model aircraft instrumentation behavior, ensuring accurate representation in simulation
 - Integrated MATLAB-generated code into Hardware-in-the-Loop (HIL) system based on Concurrent SimWb, contributing to comprehensive testing
 - Collaborated closely with software teams to define interfaces and ensure seamless integration
 - Authored detailed documentation for the System Simulation Product, providing essential insights for stakeholders
- Feb 2022 **Research Engineer**, GARRETT - ADVANCING MOTION, Prague, Czech Republic.
Feb 2024 Developed advanced software tools and control algorithms for automotive applications
- Implemented predictive power split algorithm using model-based control development (MATLAB/Simulink), resulting in decreased fuel consumption in hybrid vehicles
 - Utilized advanced optimization techniques to enhance control algorithms and improve vehicle performance
 - Developed model-based range estimation algorithm for battery electric vehicles, incorporating machine learning tools (Python) for battery SoC consumption prediction
 - Participated in code reviews, requirements management, and version control using Jama and Git
- Feb 2023 **Research Assistant - Part Time**, INSTITUTE OF INFORMATION THEORY AND
Jan 2024 AUTOMATION (UTIA), Prague, Czech Republic.
- Contributed to embedded systems software development for walking robot prototype
 - Implemented real-time control algorithms for the robot using embedded devices and communication protocols (CAN/CANopen)

Projects

- Jun-Dec 2021 **Master's Thesis**, POLITECNICO DI MILANO.
Developed innovative application for collaborative robot in food industry
- Used ROS to simulate and control robot motion
 - Addressed food manipulation challenges through development of robotic motion primitives
 - Implemented computer vision algorithms using OpenCV

- Feb-Jun 2021 **Project Work**, POLITECNICO DI MILANO.
Designed innovative mechatronic fishing reel to prevent backlash
- Developed control algorithm and implemented in embedded hardware
 - Performed signal analysis and processing for state estimation

Competitions and Personal Projects

- 2020–2021 **Indy Autonomous Challenge**.
Supporting team member of PoliMove Racing Team for Indy Autonomous Challenge
- Developed visualization algorithms for analysis of external sensor data in simulated environment
 - Conducted vehicle performance analysis in simulated environment

Education

- 2019–2021 **MSc in Automation and Control Engineering**, *Politecnico di Milano*, Milano.
Final Grade: 110/110 Cum Laude
- 2016–2019 **BSc in Cybernetics Engineering**, *Università degli Studi di Palermo*, Palermo.
Final Grade: 110/110 Cum Laude
- 2011–2016 **High School Diploma**, *Liceo Scientifico Benedetto Croce*, Palermo.
Final Grade: 100/100

Computer skills

- Advanced MATLAB, Simulink, Python, C
- Intermediate ROS, Linux, Git, Microsoft Office Suite
- Basic R, AutoCAD, CATIA

Languages

- Italian **Native**
- English **Fluent**