

SIMONE ORELLI

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SUMMARY

I am a 27-year-old Control Systems Engineer with a deep background in control theory, robotics, computer science, and software development. I am passionate about mathematics, physics, astrophysics, artificial intelligence, and all fields related to engineering. My experience spans both hardware and software projects, reflecting my curiosity and drive to continuously learn new things. Outside of engineering, I enjoy playing guitar, sports, and chess. I am currently seeking a role where I can apply and further develop my expertise in control systems and related technologies.

EDUCATION

M. Eng. equivalent, Control Engineering

Università degli Studi di Roma "La Sapienza", Rome, Italy

Nov 2021 - current

Average exam grade: 29.13/30

Exams	Grade
NONLINEAR SYSTEMS AND CONTROL	26/30
NEUROENGINEERING	30/30
ROBUST CONTROL	30/30
MULTIVARIABLE FEEDBACK CONTROL	30/30
FILTERING AND OPTIMAL CONTROL	30/30
MACHINE LEARNING	30/30
CONTROL OF COMMUNICATION AND ENERGY NETWORKS	30/30
DIGITAL CONTROL SYSTEMS	30/30 cum laude
CONTROL OF AUTONOMOUS MULTI-AGENT SYSTEMS	30/30
ADVANCED METHODS IN CONTROL	30/30 cum laude
ROBOTICS I	27/30
PROCESS AUTOMATION	28/30
CONTROL PROBLEMS IN ROBOTICS	30/30 cum laude

B. Eng. equivalent, Information Engineering, Informatics and Statistics

Università degli Studi di Roma "La Sapienza", Latina, Italy

Technical Institute: Business Information Systems

ISIS Pacifici & De Magistris, Sezze (LT), Italy

Sep 2016 - Oct 2021

Final grade: 110/110 with honors

Sep 2011 - Jul 2016

Final grade: 100/100

EXPERIENCES

Autopilot Control Systems Engineer

Partner of "Sapienza Aerospace Student Association - SASA"
for the project "Sapienza Flight Team - SFT".

Sept 2024 - May 2025

University "Sapienza" of Rome -
Faculty of Engineering - Rome

I contributed to the development and design of a geometric tracking controller for the autonomous vertical flight of a VTOL tricopter, providing solutions for stabilization and management of flight transitions.

Tutoring activity

Tutor for the course of Fondamenti di Automatica I: Teoria dei Sistemi
under the supervision of the teacher Mattia Mattioni.

Sept 2022 - Dec 2022

University "Sapienza" of Rome -
Faculty of Engineering - Latina

The activity of tutoring, didactic-integrative, consisted in the development of exercises related to the topics of the course. Classes were held during the first semester of the 2022/2023 academic year at the Latina campus of the university "Sapienza" of Rome.

Volunteer of the National Civil Service engaged in the social services sector for the project Help adults and elderly people in difficult conditions.

- Assistance of adults or in uncomfortable conditions;
- Assistance at municipal offices for initiatives promoted for social services;
- Assistance for public events to promote and protect the territory;
- Carrying out the tasks of the project, ensuring understanding and achievement of the objectives set;

TECHNICAL SKILLS

Software and tools	Microsoft Office, Simulink, Stateflow, Blender, CISCO packet tracer
Programming languages	Arduino, Assembly, C, C++, Java, MATLAB, Python (Keras), Visual Basic
Web languages	CSS, JavaScript, LaTeX, PHP, XHTML, XML
Databases	E/R scheme, MariaDB, Microsoft SQL, MySQL

LANGUAGE SKILLS

Italian	Native
English	Intermediate ability - Self evaluation: B2 (Listening, Reading, Speaking, Writing)

ACADEMIC PROJECTS

Details and media at s-orionio.github.io

Control of underactuated robots via input-constrained receding-horizon DDP *Winter - Spring 2023/2024*
Co-developed (team of 3) an optimal controller for underactuated robots using Differential Dynamic Programming (DDP) with Levenberg–Marquardt regularisation and MPC-style receding horizon. Validated on pendubot and ac-robot, achieving precise tracking under hard torque constraints for highly nonlinear dynamics.

Modeling and simulation of the Mars helicopter "Ingenuity" *Winter - Spring 2023/2024*
Collaborating in a team of 4 to realize a detailed Simulink model of the 'Ingenuity' helicopter flying in the Martian atmosphere.

Self-balancing robot on two wheels *Autumn - Winter 2023*
Worked with other 2 on building from scratch (with a 3d printer) modeling with MATLAB and Simulink and controlling a two-wheeled self-balancing robot in a digital loop with Arduino (using stepper motors, a MPU6050 board, a Kalman filter and a PID controller).

Decentralized control of the charging process of a fleet of electric vehicles *Winter - Spring 2023/2024*
Collaborated in a team of 3 to develop both classical and decentralized Model Predictive Control (MPC) strategies for optimal scheduling of a large fleet of plug-in electric vehicles, using a subgradient method for mixed-integer programming.

Control of a video-game race car using a convolutional neural network *Winter 2023*
Designed, trained and tested (with Keras) a convolutional neural network (CNN) to control a race car in a circuit of OpenAI's Car Racing environment.

Graduation thesis *Summer - Autumn 2021*
Thesis developed with professor and researcher Costantino Ricciuti on Markovian and Semi-Markovian Stochastic Processes.

Web application for delivery leveraging on MySQL DB *Spring - Summer 2021*
Developed by a two-person team, this is a PHP and CSS-based web platform for food delivery, featuring a MySQL database with E/R scheme, state diagrams and logic scheme for handling orders from partnered restaurants to customers, managed and delivered by riders with dedicated interfaces for order tracking and management.

Web application for shipping *Spring - Summer 2021*

Team of 2 to implement a PHP-developed web platform for shipping services, utilizing CSS and XML for design and data handling. It features a client-server model with distinct roles for users (clients, couriers, managers, admins), supporting activities like registration, shipment requests, and tracking, alongside role-specific functionalities.

Intranet managing

Spring 2020

Team of 2 to build and configure (router, switch and server HTTP, DNS, FTP, SMTP configuration) an intranet in CISCO packet tracer.

Chat client-server

Autumn-Winter 2019-2020

Design and implement a client-server application for a simple chat with C++ and Oracle virtual box (Linux - Ubuntu virtual machines).