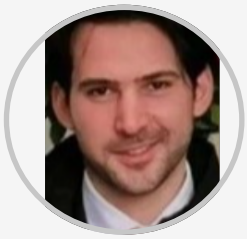
europass



# Dario Di Francesco

**Date of birth:** 04/05/1995 | **Nationality:** Italian | **Phone number:** (+39) 3755032570 (Mobile) |

**Email address:** dario.df.engineer@gmail.com |

**Address:** Via Giuseppe De Falco, 81100, Caserta, Italy (Home)

## EDUCATION AND TRAINING

28/02/2022 – CURRENT Napoli, Italy

### MASTER'S DEGREE IN AUTOMATION AND ROBOTICS ENGINEERING University of Naples Federico II

Based on the courses I have taken, my current competencies include:

- Modeling and control of multivariable systems, including those affected by process uncertainty and measurement disturbances, using LQG optimal control and eigenvalue allocation
- Theoretical foundations of Operations Research
- Fundamentals of Robot Mechanics, Tribology, and Fault Diagnosis
- System Identification and Optimal Control
- Programming in C# and use of Unity and Matlab for Brain-Computer Interface (BCI) applications
- Modeling and control of nonlinear dynamic systems with the application of nonlinear controls
- Use of virtual prototyping software such as CATIA
- Real-time programming in FreeRTOS using Unix and RT-Posix libraries
- Discrete Event Systems and Control, including knowledge of Petri Nets, Automata, and their associated supervisors
- Control and Complex System Networks, with analysis and control of complex system networks

**Some of My Work – Available as Downloadable:**

- **Topological Control of a Network of Agents for Formation Control of Autonomous Vehicles Using Nonlinear Model Predictive Control:** A multi-agent coordination system using NMPC for decentralized formation control.
  - Download PDF
- **Quadcopter Control with LQR and LQG:** State feedback and observer-based control of a quadrotor, including linearization, optimal control design, and trajectory tracking.
  - Download PDF
- **Nonlinear Control and Input-Output Linearization of Laser Dynamics:** Application of nonlinear control theory to optical systems using LQ, IOFL, and sliding mode techniques.
  - Download PDF
- **Virtual Prototyping of Remote Handling Equipment for Fusion Reactor Maintenance:** A mechanical design project aimed at assisting operators in the handling and disassembly of Plasma Facing Components using an innovative lifting and manipulation system, designed and analyzed in CATIA.
  - Download Presentation (PPTX)

I am currently studying *Fundamentals of Robotics* and *Advanced Topics in Electrical Machines and Drives*.
On my LinkedIn profile, you can view some of my projects and academic work:
https://www.linkedin.com/in/dario-di-francesco-89390a142/
Once I have completed additional exams, I will upload my latest work.

**Address** Corso Umberto I 40, 80138 , Napoli, Italy | **Website** https://ingegneria-automazione.dieti.unina.it/index.php/it/ |

**Field of study** Electronics and automation | **Level in EQF** EQF level 7 | **Type of credits** CFU | **Number of credits** 120

01/09/2013 – 28/01/2022 Naples, Italy

### BACHELOR'S DEGREE IN AUTOMATION ENGINEERING University of Naples Federico II

The main and most specific competencies acquired during my undergraduate studies include: -

- Modeling, simulation, and control of single-variable systems in MATLAB & Simulink environment
- Measurement techniques for automation and industrial production, including programmable board programming for measurement purposes
- Automation technologies and SFC Ladder programming
- Virtual prototyping in Solid Edge -Object-oriented programming in C++
- Computer networks and network filtering projects in Python

- Microprocessor programming in Assembly language on the Motorola 6800
- Fundamentals of Mechanics
- Electrical Machines and Drives
- Industrial Electrical Systems
- Electronics

These skills enabled me to complete the following thesis: "Tuning of PI Controllers Using Reinforcement Learning." The theoretical aspects of my thesis were primarily based on the didactic materials published on YouTube by Professor Alexander Amini of MIT in the course:
MIT 6.S191 Introduction to Deep

The practical aspects and implementation, specifically, the application of reinforcement learning algorithms for tuning PID controllers, were based on content from MathWorks.

**Address** Corso Umberto I 40, 80138, Naples, Italy | **Website** https://ingegneria-automazione.dieti.unina.it/index.php/it/ |

**Field of study** Electronics and automation | **Final grade** 84 | **Level in EQF** EQF level 6 | **Type of credits** CFU |

**Number of credits** 180 | **Thesis** Taratura di regolatori PI mediante reinforcement learning

## LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

| | UNDERSTANDING | | SPEAKING | | WRITING |
|---|---|---|---|---|---|
| | Listening | Reading | Spoken production | Spoken interaction | |
| **INGLESE** | C1 | C1 | C1 | C1 | C1 |

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## SKILLS

C++ | R | Matlab | Phyton | C# | UNITY | C | CATIA | Solid Edge | FreeRTOS | RT-Posix libraries | simulink

*Autorizzo il trattamento dei miei dati personali presenti nel CV ai sensi dell'art. 13 d. lgs. 30 giugno 2003 n. 196 - "Codice in materia di protezione dei dati personali" e dell'art. 13 GDPR 679/16 - "Regolamento europeo sulla protezione dei dati personali".*