## EDUCATION AND TRAINING

November 2023 - Today: **PhD student in "Industrial and Management Engineering"** at Sapienza University of Rome (Rome, Italy) **-** Department of Mechanical and Aerospace Engineering
The PhD program is **funded by PNRR**, **in collaboration with EUROCONTROL** as an industrial partner**.**
Management and operations in aviation play a key role in the research project.

**Master degree**: Aeronautical Engineering, 2023 (110/110)
**Thesis title**: *An algorithm for managing Call Sign Similarity (CSS) to improve air traffic safety*: an algorithm was developed using Microsoft Power BI, which allows to obtain the number of CSS per day, per ACC and in every hour of the day; finally a discussion was carried out, in which an approach to introduce new Call Sign proposals to mitigate the problem was analyzed.
**Thesis Supervisor: Prof. R. Patriarca**
**Università degli Studi di Roma "La Sapienza" - Rome**

**Bachelor degree**: Aerospace Engineering, 2020 (109/110)
**Thesis title**: Winglets: caratteristiche e funzionalità.
**Thesis Supervisor: Prof. G. Graziani**
**Università degli Studi di Roma "La Sapienza" - Rome**

## PROFESSIONAL EXPERIENCE

June 2023 - Novembre 2023: **Internship Trainee** at **EUROCONTROL Headquarter** (Brussels, Belgium) - Network Management Directorate / Safety Unit

## IT SKILLS

M, Mathematica, Matlab, Microsoft Office, Python, Power BI

## PUBLICATIONS

### *International conference*

**Lombardi, M.**, Di Gravio, G., Licu, T., Patriarca, R., 2024. An expert system to manage Call Sign Similarity (CSS) for safer air traffic operations. 24th NTCA International Conference (New Trends in Civil Aviation), 25-26 April 2024, Prague (Czech Republic)

### *Other presentations in conferences*

**Lombardi, M.** (2024). An expert system to manage Call Sign Similarity (CSS) for safer air traffic operations - Updates, EUROCONTROL, Safety Team, Eurocontrol's Headquarters, Brussles (Belgium), 27/06/2024
**Lombardi, M.** (2023). An expert system to manage Call Sign Similarity (CSS) for safer air traffic operations, EUROCONTROL, Safety Team, Eurocontrol's Headquarters, Brussles (Belgium), 22/07/2023

## STUDY PLAN

- Control Systems (25/30)
- Air Traffic Control (30/30)
- Gasdynamics (24/30)
- Aircraft Engines (30/30)
- Aeronautical Structures (30/30)
- Flight Dynamics (26/30)
- Air Transport Systems and Airline Operations and Economics (28/30)
- Airport Infrastructure (29/30)
- Aircraft Flight Operations and Maintenance (30/30)
- Air Guidance and Air Navigation (30/30)
- Human Factors (30/30)
- Flight Assistance Systems (30/30)
- Aviation Regulations and Safety Management (29/30)

## UNIVERSITY PROJECTS

- **Analysis of the serious incident to Airbus A319-111, registration G-EZAC near Nantes, France on 15 September 2006**: the objective of this project was to analyze the causes that led to the serious incident and identify any improvements aimed at avoiding other similar events. FTA (Fault Tree Analysis), ETA (Event Tree Analysis), GEMS (General Error Modeling System), HFACS (Human Factors Analysis and Classifications System) are the methods used for the investigation.

- **Aircraft engine design**: initially the characteristic dimensions of the engine were estimated, to then focus on the sizing of the individual components, which is aimed at satisfying the specific requests.

- **Master Plan for the extension of Salerno-Costa d'Amalfi Airport**: the following project presented the master plan to extend the existing Salerno-Costa d'Amalfi airport infrastructures to consider the increase of the traffic and the extension of the fleet with new types of aircraft (A320, B737, B757).

- **Other projects**: several projects were carried out relating to aeronautical structures, which required the use of MSC Nastran and Patran; several projects were carried out relating to flight dynamics, which required the use of Matlab and Simulink.