FRANCESCO BRANCA | Aerospace/ML Engineer

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Francesco Branca | personal website | frabranca

LANGUAGES

English - C1 / **Italian** - native / **French** - B2

SOFTWARE SKILLS

Languages: Python, C++, MATLAB, Java, HTML, CSS, CMake, Bash, Shell, SQL
Tools: Linux - Docker - GitHub - AWS

SOFT SKILLS

Critical Thinking, Research, Teamwork, Communication, Public Speaking, Presentation Time Management, Teaching

WORK EXPERIENCE

Teaching Assistant | TU Delft | University Job — 2/2023 - 7/2023

- Worked for 3 courses and collaborated in total with 20 assistants and 8 professors.
- Contributed to an average course passing rate of 72%.
- Prepared **Python** coding assignments for 300+ students.
- Led sessions for 200+ students daily to explain **machine learning** and **data analysis** concepts.
- Python libraries: `numpy, scipy, pandas, sklearn, matplotlib, seaborn, pytorch, tensorflow`

Research Intern | DFKI | Research Institute — 9/2022 - 2/2023

- Designed an experimental setup for active debris removal.
- Developed **Python/C++** code to control a 7 degrees-of-freedom Franka robot arm (see Github).
- Developed and compared the performance of 2 **control algorithms**.
- Conducted 30+ experimental sessions using the setup to collect data.

Master Student Mentor | TU Delft | University Job — 9/2023 - 12/2023

- Led welcoming sessions for 20 freshmen students.
- Organized 2 meetings per week and provided guidance to support the students.

EDUCATION

MSc Control & Simulation — 9/2021 - 2/2024

Delft University of Technology

- **KEY COURSES:** *ML for Robotics, Operations Optimization, Automatic Flight Control, Intelligent Control Systems*

BSc Aerospace Engineering — 9/2018 - 7/2021

Delft University of Technology

- **KEY COURSES:** *Control Theory, Experimental Research & Data Analysis, Linear Algebra, Calculus*

THESIS

Master Thesis | MAVLab — 5/2023 - 5/2024

- Developed **neural networks** on **PyTorch** for computer vision (see Github).
- Trained optimized 100+ **deep learning** models.
- Implemented the network on cutting-edge device to achieve x1000 power reduction.
- Grade: **8.5/10**, very good according to TU Delft standards.

COURSES / CERTIFICATES

Generative AI with LLMs | Online Course — 9/2024 - 10/2024

- Course by **DeepLearning.AI & AWS** (view certificate)
- Learned about **generative AI**, transformers and fine-tuning techniques.
- Worked with **AWS** to optimize and test 3 pre-trained models.

Computer Vision Project | MAVLab — 3/2022 - 5/2022

- Worked in a team of 10 engineers for 6 weeks.
- Participated in a competition to develop an **autonomous drone** (ranked 4^{th}/12 groups).
- Collected **large dataset** and engineered an **obstacle detection**.

OTHER EXPERIENCE

Website Content Manager | Control & Robotics Fair | **Study Association** **10/2021 - 5/2022**

- Organized a networking event for +400 students.
- Collaborated with +50 engineering companies.
- Designed the website, ensuring functionality and user comfort.

Event Manager | STABILO | **Study Association** **9/2021 - 9/2022**

- Organized social activities and concerts for 150+ master students and 15+ professors.
- Collaborated with 8 engineering companies to plan networking events.
- Contributed to a roughly 200% increase in event participation.

HOBBIES & INTERESTS

- **Music**: play guitar, bass, and drums; compose and record music; study music theory
- **Concerts**: organize and attend live music events, participate in open-jam sessions.
- **Neuroscience & Psychology**: reading books, self-studying and listening to podcasts.
- **Drone Flying**: shooting videos and pictures of natural spots.