

Tommaso Canova

MASTER STUDENT IN ARTIFICIAL INTELLIGENCE

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Education

Aalto University

Espoo, Finland

MSc in Artificial Intelligence (Second year - Exchange student - Erasmus+)

Sept 2023 - Nov 2024

- **Average grade:** 5.0/5.0
- **Relevant coursework:** Complex networks, Quantum Machine Learning, Reinforcement Learning, Special Assignment in Speech and Language Processing

University of Trento

Trento, Italy

MSc in Artificial Intelligence Systems (First year)

Sept 2022 - August 2023

- **Average grade:** 28.75/30, GPA:3.9/4.0
- **Relevant coursework:** Machine Learning, Deep Learning, Computer Vision, Digital Image and Video Processing, Natural Language Processing

University of Trento

Trento, Italy

BSc in Computer, Communication and Electronic Engineering

Sept 2019 - Sept 2022

- **Grade:** 110/110 (with honours), Average Grade: 28.48/30, GPA: 3.9 / 4.0
- **Thesis:** Firmware development and Graphical User Interface design for a Stepper Motor test bench prototype (**thesis**)
- **Relevant coursework:** Embedded Systems, Formula SAE laboratory, Advanced programming, PCB design and prototyping

Work Experience

Nokia

Espoo, Finland

AI Software Engineer Intern

May 2021 - Nov 2024

- Spearheaded the development of an innovative solution using a **Large Language Model (LLM)** to transform Salesforce tickets into comprehensive technical articles for **Retrieval-Augmented Generation (RAG)** applications purposes. Significantly outperformed previous metrics, achieving a **92% success rate** (articles passing criteria without modification).
- Leading the creation of a cutting-edge end-to-end system for state-of-the-art **LLM Evaluation** based on internal company products documentation.
- **Skills:** Python, PyTorch, Docker, RAG, GenerativeAI, Vector Databases (Milvus and Opensearch), Unstructured data management

E-Agle Trento Racing Team (Formula Student)

Trento, Italy

Team Leader and Embedded Software Engineer

Oct 2021 - Sept 2023

- **Lead** and organized a group of 80 students among engineers and economists towards the building of a new electric car, in order to take part in the **Formula Student European** competitions. **Managed 3rd place in Endurance competition** at Formula Italy. ([Team website](#))
- Developed the **BMS** (Battery Management System) **firmware** of the custom board connected to the low voltage battery of **Fenice** and **Fenice-EVO**, the two latest electric vehicles of the team. The system supplies all the other **low voltage** boards, controls the car's cooling system and manages all the safety controls required. **Improved battery efficiency by 20%** using PI controls. ([Repository](#))
- **Skills:** Low level programming with C, CAN bus protocol, STM32 MCUs, Hardware debugging, Soldering, KiCAD, Teamwork, Leadership, People management, Relationship management with partner companies

ProM Facility (Trentino Sviluppo)

Rovereto (TN), Italy

R&D Intern

Sept 2021 - June 2022

- Developed the firmware and the Graphical User Interface (**GUI**) for an innovative stepper motor test bench prototype, running on **ARM** (STM32) architecture. **Reduced testing setup time by 94%**
- Built a firmware feature for a calibration system of a medical machine used by a proton therapy company. **Cut down calibration time by 5x times.**
- **Skills:** C, STM32 MCUs, Python, Multi-threading, Data manipulation, Data Visualization

Skills

Programming

Python, C, C++, SQL, Java

Libraries

Numpy, Pandas, Matplotlib, Seaborn, PyTorch, Scikit-learn, DearPyGui, NLTK, Spacy, OpenCV, FastAPI

OS and tools

Linux, MacOS, Windows, Git, Bash, Docker, Ollama, Latex, Markdown

Soft Skills

Leadership, Time Management, Teamwork, Problem-solving, Critical thinking, Decision-making

Projects

HiFi Watermark for audio

Espoo, Finland

[Deep Learning] - Aalto University

September 2023 - December 2023

- U-Net based **deep learning** architecture for Watermark embedding and retrieval on HiFi-GAN generated audio. **Repository**
- Pytorch model trained using **LJSpeech** dataset. **Achieved** Perceptual Evaluation of Speech Quality (**PESQ**) score of **4.4/5**

Multi-sensor camera dewarping for basketball court view correction

Trento, Italy

[Computer vision] - University of Trento

December 2023

- Built a dewarping mechanism using Delaunay triangulation to correct visual artifacts, such as object duplication, in multi-sensor camera videos of basketball court.
- **Corrected 80% of the visual artifacts** present in the videos. **Repository**

Fibit Fitness Tracker data analysis

Espoo, Finland

[Data Science] - Aalto University

December 2023

- Performed Data Cleaning, **Feature Engineering** and Exploratory Data Analysis. **Repository**
- Extracted **insights** and **trends**. Validated users compliance with WHO guidelines on physical activity and sedentary behaviour.

Stepper motor test bench

Rovereto (TN), Italy

[Embedded Systems] - ProM Facility

March 2022 - July 2022

- An innovative Step Motor testbench prototype with two STM32 based units and a fully custom Python GUI. **Repository**.
- Implemented complete automation of manual motor characterization processes, resulting in a **2-hour reduction in time** required for value setup and data acquisition.

Low Voltage Battery Management System firmware (BMS LV)

Trento, Italy

[Embedded Systems] - E-Agle TRT

Oct 2021 - Present

- The LV-BMS is a custom PCB in charge of handling the power supply of all low voltages component of the Formula Student car: Fenice EVO. The firmware is safety compliant with respect to the *Formula Student Germany competition rules*.
- **Improved battery efficiency by 20%** using PI controls. (**Repository**)

Achievements

Nov 2023 **4th Place Winner (out of 100+ teams) at Huawei Challenge**, Junction Hackathon 2023

Helsinki, Finland

Sept 2019 **Excellent student award ("Studente Eccellente nella Città di Este")**, Municipality of Este

Este (PD), Italy

2018/2019 **Winner of the Italian rugby U18 championship**, Petrarca Rugby team

Italy

2016/2017 **Winner of the Italian rugby U18 championship**, Petrarca Rugby team

Italy

Languages

English Professional proficiency (IELTS Academic certification)

Italian Native proficiency

Spanish Elementary proficiency

Finnish Elementary proficiency