Tommaso Canova

Master student in Artificial Intelligence

Helsinki, Finland

tommaso.canova.lavori@gmail.com | cannox227.github.io | github.com/cannox227 | linkedin.com/in/tommaso-canova

Education

Aalto University — *Espoo, Finland*

MSc in Artificial Intelligence (Second year - Exchange student - Erasmus+) — *Sept 2023 - Present*

- **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

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
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. `Repo`
- 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 Finess 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 *Rovereteo (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