Viale Goffredo Franchini 1D
16167 Genova, Italy
+39 331 318 7687
fillolafa@gmail.com
filippo-la-fauci9302
Birth: 27 Mar 2002 ‖$Nationality : Italian$

Filippo La Fauci

Erasmus Mundus Joint Master student in Sustainable Systems Engineering (Computer engineering) and electronic engineer with hands-on embedded ML, data-driven problem solving, and a growing focus on AI.

Profile

Recent B.Sc. graduate in Electronic Engineering and IT (99/110, University of Genoa) and **Erasmus Mundus Joint Master (EMSSE) student in Sustainable Systems Engineering – Systems-of-Systems track (2024–2026)**. Experienced in **embedded machine-learning systems**, relational-database design, and data analysis. Now pursuing opportunities at the intersection of *AI, technology policy, and global security*.

Education

2024–2026 (exp.) **Erasmus Mundus Joint Master Degree**, **Sustainable Systems Engineering (EMSSE) – Systems-of-Systems / Computer Engineering track**, Mobility path: UPC (Spain), UPT (Albania), UNIGE (Italy)

- Training path "SoSE": methods and tools for modelling, sensing, control and decision-making in autonomous, mutually interacting cyber-physical Systems-of-Systems (connected vehicles, drones, smart grids, distributed logistics).
- Mobility: **M1S1** at Universitat Politècnica de Catalunya (Sept 2024–Jan 2025); **M1S2** at Universiteti Politeknik i Tiranës (Mar 2025–Jun 2025); **M2S1** at University of Genoa (Sept 2025–Jan 2026); **M2S2** industrial thesis project.
- Core coursework: distributed AI, resilient control, hardware-enabled security, data-centric sustainability metrics.
- **Full Erasmus Mundus scholarship recipient.**

2020–2024 **B.Sc. Electronic Engineering & Information Technology**, **University of Genoa**, Genoa, Italy

Grade: 99/110
Thesis: Design and implementation of an embedded system for *ski-activity recognition* (supervisor: Prof. Riccardo Berta)
Duration: 3 years ‖$Graduated : 14\ Feb\ 2024$

2015–2020 **High School Diploma (Scientific)**, **Liceo Scientifico M. L. King**, Genoa, Italy

Grade: 90/100

Work Experience

2024 **Workaway Volunteer**, *Workaway*, Ireland & Germany

- Collaborated on construction and IT support projects with local hosts.
- Assisted in building maintenance, renovation works, and network setup/troubleshooting.
- Engaged daily with people from diverse cultures, enhancing cross-cultural communication and adaptability.

Selected Technical Projects

2024 **B.Sc. Thesis – Embedded ML for Ski-Activity Recognition (Arduino Nano 33 BLE Sense)** – engineered a Flutter-based mobile app for BLE data acquisition, real-time visualization and Measurify cloud integration; developed the wearable IMU logger; trained on-device CNN (TensorFlow Keras) achieving **98 %** real-time accuracy in classifying slalom, snow-plough, tuck and push-off.

2025 **Petri-Net Model of Elevator Control System with AnyLogic Implementation** – Developed and verified a minimal Petri-net model of a single-car elevator across three floors using PIPE². Computed incidence matrices, reachability graphs, and invariants to prove conservation, boundedness, and liveness. Verified deadlock-freedom and graceful termination. Simulated and analyzed control logic behavior in AnyLogic.

2025 **VR Platformer Game "The Floor is Lava" (Unity)** – designed an immersive first-person VR game with procedurally generated floating platforms and event-driven gameplay using Unity Standard Assets; authored technical report and demo.

2024 **Statistical HypothesisTesting & Power Analysis** – implemented two-sample t-tests, effect-size and power curves in Python (SciPy, seaborn) to guide sample-size planning.

2024 **Sustainable Shopfloor Production Control (MATLAB/Simulink)** – modelled coupled nonlinear ODEs for production-energy-scrap dynamics, discretised via Euler, and designed PID/relay control to minimise energy use and waste; evaluated sustainability KPIs in Simulink.

2024 **Bootstrap Accuracy Analysis for Regression Models** – quantified predictive-error uncertainty via bootstrap resampling; automated pipeline in NumPy, pandas, scikit-learn, Matplotlib.

2024 **Freeway Ramp-Metering Control Simulation** – built Python/MATLAB freeway model to evaluate ALINEA control across 10 demand scenarios; compared open- vs closed-loop strategies with KPIs (downstream density, outflow, avg. density).

2024 **CNN Image Classifier** – trained Keras/TensorFlow CNN in Jupyter, achieving 92% accuracy on custom dataset; deployed model with TensorFlow Lite.

2024 **Retail Behavior CV & Anomaly Detection** – OpenCV/PyTorch pipeline for customer-flow heat-maps and suspicious-activity flags in video surveillance.

2024 **Obesity-Level Estimation ML Pipeline** – engineered features from lifestyle survey data; compared Random Forest, XGBoost (+13% F1) and presented policy implications.

2024 **Arduino Dual-Board PWM Signal Filtering** – generated 50%-duty PWM on one Arduino UNO; second UNO sampled via ADC, applied moving-average filter to isolate fundamental sinusoid, and visualised original vs. filtered signals in Serial Plotter.

2023 **Jet-Injector Combustion CFD (ANSYS Fluent)** – Simulated jet-injector combustion in ANSYSFluent, sweeping air mass-flow and pressure to gauge their effect on combustion efficiency and turbine-inlet temperature. Parametric results pinpointed operating points that maximize outlet temperature, informing jet-engine performance optimization.

2023 **AM Modulation System (LTSpice)** – Designed and simulated an LTSpice AM transceiver that low-pass-filters audio (1.5kHz cutoff), amplitude-modulates a high-frequency carrier, then demodulates via rectification+filtering. Circuit validation confirmed clean carrier suppression and faithful recovery of the original audio signal after transmission.

2023 **Logistics-Center Database (SQLite)** – designed a fully-constrained SQLite database for an in-house supermarket distribution hub (warehouse workflows & delivery-fleet maintenance), leading end-to-end lifecycle: requirements capture; ER & relational modelling (PK/FK); and implementation of analytical views.

Technical Skills

Languages C++, C#, Python, Dart, SQL, Matlab, Embedded C

Frameworks	TensorFlow Lite, Keras, PyTorch, scikit-learn, XGBoost, OpenCV, NumPy, pandas, SciPy, seaborn, Flutter, .NET, Unity (*VR*), Git
Simulation / EDA	Simulink, ANSYS Fluent, LTSpice, Matplotlib, Jupyter Notebook, traffic-flow simulation
Databases	SQLite, MySQL, PostgreSQL
Tools	VS Code, Arduino IDE (PWM/ADC), Office Suite (Excel advanced), LaTeX
Spoken Languages	Italian (native), English (C1), French (B2), Spanish (A2), Albanian (A2)

Activities & Interests

Sports — Competitive Alpine Skiing, Football, Tennis

- Competitive alpine skier with regional and national level experience; participated in official races and achieved first placement in the Liguria regional championship.

Interests — IoT, AI, Electronics, Geopolitics, Cinema, Sports Journalism, Self-organization of international travels to experience diverse cultures

- Passionate traveler who plans and organizes multi-destination trips independently; visited over 50 countries; seeking out diverse cultures and customs.

References

Available upon request.