

# Ermanno Fiorillo

Master's Student in Electrical Engineering, Information Technology and Computer Science at  
RWTH Aachen University

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🐙 [GitHub/ErmannoF00](#)

## PROFESSIONAL SUMMARY

Bioengineer and M.Sc. student at [RWTH Aachen](#), specializing in Electrical Engineering and Computer Science with an interdisciplinary background in machine learning, signal processing, analog IC design, embedded systems, and neuromorphic hardware. Experienced in research and industry projects involving analog co-design, sensor modeling, ML pipeline development, and GUI integration. Co-founder of [Young Neuromorphs](#), a community focused on bridging neuroscience and next-generation computing through FPGA prototyping and edge hardware acceleration within the European research ecosystem.

## EXPERIENCE

**Software Engineer Intern – [Prophesee](#)** 📍 Paris, France 09/2025–Present

- 🔧 Tested Dynamic Vision Sensor characterization models (KAN) on 5 million parameters; improved accuracy by 15%.
- 🔧 Integrated optimized ML pipelines into simulation frameworks.
- 🔧 Collaborated with the hardware team to accelerate sensor dataset generation.

**Student Assistant – [Forschungszentrum Jülich \(PGI-14\)](#)** 📍 Aachen, Germany 11/2024–07/2025

- 🔧 Designed analog circuit blocks for the Mamba ML architecture to enhance inference efficiency.
- 🔧 Developed Cadence Virtuoso + LTspice co-simulation integrated with PyTorch.
- 🔧 Trained and tested the software implementation of the Mamba SSM using the Tustin transform (accuracy 96%).

**AI/ML Research Project – [Helmholtz Institute](#)** 📍 Aachen, Germany 04/2024–07/2024

- 🔧 Built an ML pipeline for medical speech-to-text transcription.
- 🔧 Automated dataset processing for large-scale deployment (500+ diagnoses).
- 🔧 Developed a GUI for user-friendly interaction with live text correction (accuracy over 80%).

**Software Engineer Intern – [Italian Institute of Technology](#)** 📍 Genoa, Italy 03/2023–03/2024

- 🔧 Integrated haptic and eye-tracking sensor data streams using a serial communication method.
- 🔧 Developed a PyQt GUI for synchronized data acquisition.
- 🔧 Analyzed collected data using clustering techniques after post-processing (25 patients involved).

**Head Waiter & Bartender – [Caffè Trieste Ovada](#)** 📍 Ovada, Italy 06/2019–09/2022

- 🔧 Delivered customer service and managed high-volume bar operations.
- 🔧 Supervised and coordinated a 10-person team during events (100+ guests).

## EDUCATION

**[RWTH Aachen University](#)** 04/2024 – Present

M.Sc. in Electrical Engineering, Information Technology and Computer Science

- 🔧 **Major:** Biomedical Systems Engineering
- 🔧 **Key Courses:** AI, Microprocessor Architecture, Embedded Systems, Image Processing, Data Analytics, Electronics

**[University of Genoa](#)** 09/2023 – 04/2024

M.Sc. in Neuroengineering and Neurotechnologies (1 semester)

- 🔧 **Key Courses:** Biomedical Data Analysis, Signal Processing, Brain–Computer Interfaces, Robotics

**[University of Genoa](#)** 09/2023

B.Sc. in Biomedical Engineering

- 🔧 **Minor:** Computer Science and Electronics
- 🔧 **Key Courses:** Object-Oriented Programming, Circuit Theory, Signal Processing, Bioelectronics, Control and Systems Theory, Neurophysiology, Electromagnetic Fields

## SKILLS

Programming & Scripting: Python, C++, MATLAB/Simulink, SystemVerilog, JavaScript, HTML, CSS, React.js  
Machine Learning & Data: PyTorch, TensorFlow, Scikit-learn, Pandas; ML pipelines; model training & deployment  
Signal Processing: Feature extraction, filtering, time–frequency analysis; EEG processing  
Embedded & Neuromorphic: Cortex-M4 MCU, C++ inference, Spiking Neural Networks (SNN), AdLIF

EDA/Hardware: Cadence Virtuoso, LTspice, analog IC co-design, sensor modeling

Tools & Platforms: Linux, Git, Jupyter, VS Code, PyCharm

GUI/Apps: PyQt, full-stack React.js + Node.js

Soft Skills: Communication, teamwork, leadership, flexibility, project coordination

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## PROJECTS

- 🔗 [Probe Detection](#) – YOLOv8 detector optimized for drone recognition (reduced inference latency by 30%).
- 🔗 [SystemVerilog Memristor Crossbar](#) – Designed and testbenched a 64×64 memristive array with AdLIF neurons and validated spike dynamics.
- 🔗 [Speech-to-Text GUI](#) – Developed a PyQt5 interface integrating ML models for transcription, grammar correction, and automated dataset generation.
- 🔗 [Embedded-SNN](#) – Built a spiking neural network engine for EEG classification on a Cortex-M4 MCU (Brian2 training, C++ inference).
- 🔗 [Multifunctional Website](#) – Developed a full-stack web application (chat, gallery, letterbox, game room) using React.js and Node.js.

More projects and source code available on my [GitHub](#).

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## VOLUNTEERING

Co-Founder – [Young Neuromorphs](#) (2024–Present)

Founded a student-led community on neuromorphic computing (organized FPGA hackathon with [imec](#), 100+ participants).

IT Team Member – [EESTEC Aachen](#) (2024–Present)

Maintained chapter website and infrastructure (co-organized Infineon-sponsored hackathons).

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## CERTIFICATES

- 🔗 Coursera – Stanford [Machine Learning](#) (2023)
- 🔗 [IELTS Academic](#) – C1 (2023)
- 🔗 [g.tec Medical Engineering](#) – BCI and Neurotechnology Spring School (2023–2024)

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## HONORS AND AWARDS

- 🔗 Regional Scholarship – [ALISEO Liguria](#) (2022)
- 🔗 Merit Prize for GPA – University of Genoa (2020–2021)

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## LANGUAGES

Italian – C2 (Native)

English – C1 (Fluent)

German – A2 (Basic)

French – A2 (Basic)

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## REFERENCES

- 🔗 Dr. Alessandra Sciutti – Senior Tenure Track, CONTACT Unit, Italian Institute of Technology  
*Thesis Supervisor (University of Genoa collaboration)*  
Email: [alessandra.sciutti@iit.it](mailto:alessandra.sciutti@iit.it)
- 🔗 Prof. Laura Avanzino – Professor of Neurology, University of Genoa  
*Professor*  
Email: [laura.avanzino@unige.it](mailto:laura.avanzino@unige.it)

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## INTERESTS

Philosophy, geopolitics, chess, swimming, hiking, vinyls, classic cinema, and music oscillating between acid techno and classic jazz.