Ermanno Fiorillo

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

Am Guten Hirten 5, iLive Campus Apt 3.130, 52072 Aachen, Germany
+39 345 219 0900
ermanno.fiorillo@rwth-aachen.de
ermannof00.github.io/Portfolio
linkedin.com/in/ermanno-fiorillo-799296171
github.com/ErmannoF00

About Me

Bioengineer and M.Sc. student at RWTH Aachen with an interdisciplinary background in **machine learning, signal processing, analog IC design, embedded systems, and neuromorphic hardware**. Research experience at Forschungszentrum Jülich (PGI-14), the Helmholtz Institute Aachen, and the Italian Institute of Technology. Co-founder of Young Neuromorphs, focusing on bridging neuroscience and next-generation computing through **analog AI, FPGA prototyping, and edge hardware acceleration**.

Experience

Software Engineer Intern – Prophesee — Paris, France — *09/2025–Present*
- Tested dynamic-vision sensor (DVS) characterization models (KAN) on 5e6 parameters; improved accuracy by 15%.
- Integrated optimized ML pipelines into the DVS simulator for automated sensor evaluation.
- Collaborated with hardware team on embedded inference, FPGA validation, and real-time data acquisition.

Student Assistant – Forschungszentrum Jülich (PGI-14) — Aachen, Germany — *11/2024–07/2025*
- Designed analog and mixed-signal circuit blocks for Mamba ML architecture to enhance inference efficiency.
- Deployed Cadence Virtuoso and LTSpice submodules with PyTorch co-simulation for circuit co-design.
- Developed initial IC layout documentation with potential for patent submission.

AI/ML Research Project – Helmholtz Institute — Aachen, Germany — *04/2024–07/2024*
- Built an ML pipeline for medical speech-to-text transcription with grammar correction and dataset automation.
- Processed 500+ diagnoses to improve transcription accuracy and clinical integration using deep-learning tools.

Software Engineer Intern – Italian Institute of Technology — Genoa, Italy — *03/2023–03/2024*
- Integrated haptic and eye-tracking sensors for cognitive neuroscience experiments.
- Developed a PyQt GUI to synchronize acquisition, enabling ML-based visuo-haptic analysis.
- Solved sensor noise and thermal instability; conducted full experimental sessions autonomously.

Head Waiter & Bartender – Caffè Trieste Ovada — Ovada, Italy — *06/2019–09/2022*
- Delivered customer service and managed high-volume bar operations.
- Supervised a 10-person team during events with 100+ guests; coordinated catering and logistics.

Education

RWTH Aachen University — *04/2024 – Present*
M.Sc. in Electrical Engineering, Information Technology and Computer Science
Major: Biomedical Systems Engineering | *Key Courses:* AI, Embedded Systems, Image Processing, Data Analytics

University of Genoa — *09/2023 – 04/2024*
M.Sc. in Neuroengineering and Neurotechnologies (1 semester)
Key Courses: Biomedical Data Analysis, Signal Processing, BCI, Robotics

University of Genoa — *09/2023*
B.Sc. in Biomedical Engineering
Major: Computer Science and Electronics | *Core Subjects:* Circuit Theory, Signal Processing, OOP, Electronics

Projects

- **Probe Detection** – YOLOv8 object detection for drone probes; optimized via YAML for embedded applications.
- **SystemVerilog Memristor Crossbar** – Designed memristive arrays and spiking AdLIF neurons for neuromorphic hardware.
- **Speech-to-Text GUI** – PyQt5 tool integrating ML models for transcription and grammar correction.
- **Embedded-SNN** – Spiking NN engine for EEG on Cortex-M4 (Brian2 training, C++ inference).
- **Multifunctional Website** – Full-stack app (chat, gallery, letterbox, game room) using React.js and Node.js.

More projects and source code available on my GitHub.

Volunteering

Co-Founder – Young Neuromorphs (2024–Present)
Founded a student-led community on neuromorphic computing; organized FPGA hackathon with imec and built academic–industry internship bridges.

IT Team Member – EESTech Aachen (2024–Present)
Maintain chapter website and infrastructure; co-organize Infineon-sponsored community hackathons.

Skills

Core: Machine Learning, Signal Processing, Embedded Systems, Analog/Digital Electronics, Mixed-Signal Design
Programming: Python, C++, MATLAB/Simulink, SystemVerilog, JavaScript, React.js
AI/ML Frameworks: PyTorch, TensorFlow, Scikit-learn, Pandas
EDA Tools: Cadence Virtuoso, LTSpice, KiCad
Dev Tools: Git, Linux, Jupyter, VS Code, PyCharm, GCC/LLVM
Soft Skills: Communication, Teamwork, Leadership, Flexibility, Project Coordination

Certificates

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

Honors and Awards

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

Languages

Italian – C2 (Native)
English – C1 (Fluent)
German – A2 (Basic)
French – A2 (Basic)

References

- **Dr. Alessandra Sciutti** – Senior Tenure Track of the CONTACT unit at the Italian Institute of Technology
  Thesis Supervisor, University of Genoa collaboration
  Email: alessadra.sciutti@iit.it

- **Dr. Professor Laura Avanzino** – Professor, Neurologist at the University of Genoa
  Professor
  Email: laura.avanzino@unige.it

Interests

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