Andrea Giampietro

Machine Learning · NLP · EEG & neurotechnology · audio · MSc Artificial Intelligence Systems

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MSc in Artificial Intelligence Systems from the University of Trento (Neurocognitive Architectures' Curricula), after a computer science degree in Genoa. Mostly, I use Python and PyTorch, working on NLP, generative-model evaluation and bias, vision-language models, and, in my thesis, what EEG models of musical attention actually decode. Outside of university I produce music, do sound design and audio engineering, which is where the interest in sound and signals started.

Technical Skills

- **Programming:** Python (primary), C, C++, Java; JavaScript (familiar)
- **ML / AI:** PyTorch, Hugging Face Transformers, scikit-learn, NumPy, Pandas; deep learning, NLP (LSTMs / BERT), model evaluation (bias, calibration)
- **Signals & audio:** EEG-based ML (thesis), time-series/sequence modeling; audio engineering & music production (Ableton Live)
- **Tools & systems:** Git, Linux, Jupyter, Azure OpenAI API; fundamentals of networks, operating systems and databases

Selected Projects

github.com/giampyhatesyou

Neurotechnology

- **What are we really decoding in musical attention?** (MSc thesis, code public): started as an attempt to improve an EEG-audio decoding architecture (Akama et al., 2026) and became an audit of what music attention-decoding accuracies measure. A contrastive model scoring 0.946 on held-out trials falls to 0.258 (null 0.25) on a held-out song; window-level cross-validation lets a label with no attentional content reach 0.62.

Generative-model evaluation & bias

- **OpenInterBias**: extending OpenBias to jointly score overlapping social biases in text-to-image models. **Confirmation Bias in LLMs**: measured logical consistency and calibration of GPT-4o in prompting strategies.

NLP & vision-language

- **NLU**: regularized LSTM language model; intent classification and slot filling in ATIS with fine-tuned BERT. **ProtoCoCoOp**: adapted CLIP to novel classes preserving zero-shot ability; best harmonic mean on Flowers102 among compared methods.

Education

MSc in Artificial Intelligence Systems, University of Trento Sep 2024 – Oct 2026

- Focus: Neurocognitive Architectures. Thesis: *What are we really decoding in musical attention?* (supervisor: Daniel Baldauf).

BSc in Computer Science, University of Genoa Sep 2021 – Oct 2024

- Foundations in C / C++ / Java: algorithms & data structures, numerical analysis, OOP.
- Thesis: *Analysis of Post-Quantum Cryptography Protocols* (supervisor: Paolo Solinas).

Experience & Volunteering

Orientation Tutor, University of Genoa Sep 2023 – Oct 2024

- Guided prospective students and supported the department's orientation activities.

Science Communicator, Albissola / Genoa 2018, 2023

- Turned complex scientific material into talks and demos for diverse audiences; managed event workflows under tight deadlines.

Scout Leader, Leaders' Community of the Arenzano Scout Group Ongoing

- Formerly led activities in the field; no longer in a unit role, still active in the group's leaders' community.

Extra

- **Technology for Health, University of Twente** (ECIU micro-module, 5 EC, MSc Biomedical Engineering; Aug to Nov 2026, on campus in Enschede in September): in an international topic group of five, analysed Wireless Robotic Clot Retrieval (untethered magnetic robots for thrombectomy; dr. I. S. M. Khalil, RaM / TechMed Centre) as a healthcare problem, a maturing technology and a transfer case; interviewed the project lead, presented in the workshops and wrote three individual essays.
- **Challenges & summer programs:** ECIU Changemakers 2026 (University of Aveiro): preventive-healthcare challenge; built and presented a data-driven dashboard prototype.
- **Interests:** guitar, bass, DJing and live performance, alongside music production and sound design.
- **Languages:** Italian (native), English (professional working proficiency, Cambridge FCE; C1 listening & reading).