Antonio Giganti

Website | LinkedIn | GitHub | Bandcamp

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Introduction

Hi, I am Antonio. I am an AI & Audio Engineer at Musixmatch, where I work at the intersection of machine learning and audio technology. My background spans electronic engineering, acoustic research, and music education, bridging the gap between science and creative sound. Outside of work, I am a drummer, DJ, and experimental music enthusiast with a soft spot for analog photography and modern architecture.

Experience

Engineer — Apr 2025 – Present
Musixmatch — *Bologna, Italy*
Worked on the design and engineering of Fingerprint (Sentinel, copyright detection) and Transcription APIs

Teaching Assistant — Feb 2024 – Mar 2025
Politecnico di Milano — *Milan, Italy*
M.Sc. course *Computer Music: Languages and Systems*
SuperCollider platform, JUCE Framework, Algorithmic composition, Live coding

PhD Candidate — Nov 2021 – Apr 2025
Politecnico di Milano - ISPL — *Milan, Italy*
Image Super-Resolution, Spatiotemporal forecasting, Multimedia signal processing, Audio forensics, IT team at the Image and Sound Processing Lab (ISPL)

Research Intern — May 2023 – Feb 2024
Arianet s.r.l. — *Milan, Italy*
Graph-based pollutant forecasting, Sparse gas emission downscaling

Professor — Mar 2022 – Mar 2025
CPM Music Institute — *Milan, Italy*
Fundamentals of Electronics classes for the AFAM Pro Audio Engineer degree

Education

SAE Institute Milano — Nov 2026
Masterclass — *Milan, Italy*
Selected via national call (10 artists under 35) by Music Innovation Hub × SAE Institute Milano. Training in immersive sound production, live spatial performance and site-specific installation at La Capsula, BASE Milano, with a final group project presented at Linecheck Festival.

Politecnico di Milano — Nov 2021 – Apr 2025
Ph.D. in Information Technology — *Milan, Italy*
Supervisor: Prof. Paolo Bestagini

Politecnico di Milano — Mar 2019 – Oct 2021
M.Sc. in Music and Acoustic Engineering — *Milan, Italy*
Audio Signal Processing, Audio/Video Coding, Psychoacoustics, Acoustics, Electroacoustics Sound Synthesis
Spatial Audio, Machine and Deep Learning

Università degli Studi di Perugia — Sept 2014 – Sept 2018
B.Sc.Eng. in Electronics Engineering — *Perugia, Italy*
Signals and Systems Theory, Probability and Statistics, Fundamentals of Electronics, Electronics for Digital Systems
Fundamentals of Electromagnetic Fields, Radio-frequency Engineering, Computer Architecture and Operating Systems
Fundamentals of Telecommunications

Selected Projects

Attrito	*a site-specific sound installation where real-time tracking drives Ambisonics spatialization*	Website
AnDrone.io	*a DIY drone synthesizer based on the Axoloti (now Ksoloti) DSP board*	Github
BVOC SR	*list of research works related to Super-Resolution of biogenic Emissions investigated during my Ph.D.*	Github
MAGCRN	*a framework proposed to forecast NO_2 concentration using Spatiotemporal GNN*	Github

co^{2}des	*an environment for enhanced live coding performance*	Github
toneZ	*a tonnetz diagram viewer built for browser*	Github
somewhen	*an experimental and ambient album composed using the AnDrone synth and granular techniques*	Bandcamp
live from giardino	*a live performance exploring the potential of the AnDrone synth I programmed*	Bandcamp
sequenze	*an experimental and minimalist album composed during the pandemic*	Bandcamp
Spectral Environment	*a collection of audio textures obtained through modular synthesis and time-spectral techniques*	Bandcamp

Publications

- Giganti, A., "Development of a Framework to Enhance BVOC Imaging," 2025, Ph.D. Thesis, *Politecnico di Milano*
- Ummerle, C., **Giganti**, **A.**, Mandelli, S., *et al.*, "Leveraging Land Cover Priors for Isoprene Emission Super-Resolution ," 2025, *MDPI Remote Sensing*
- **Giganti**, **A.**, "Unveiling nature's secrets: Deep learning for enhanced biogenic emission resolution," 2025, *Elsevier — Science Talks*
- Salvi, D., Leonzio D. U., **Giganti**, **A.**, *et al.*, "POLIPHONE: A Dataset for Smartphone Model Identification From Audio Recordings ," 2025, *IEEE Access*
- **Giganti**, **A.**, Mandelli, S., Bestagini, P. and Tubaro, S., "Learn from Simulations, Adapt to Observations: Super-Resolution of Isoprene Emissions via Unpaired Domain-Adaptation," 2024, *MDPI Remote Sensing*
- **Giganti**, **A.**, Mandelli, S., Bestagini, P., *et al.*, "Back to the Future: GNN-Based NO_2 Forecasting Via Future Covariates," 2024, *IEEE-IGARSS 2024*
- **Giganti**, **A.**, "BREATHE - boosting resilience and environmental accuracy of terrestrial BVOC emissions through AI-enhanced high-resolution estimation," 2024, *Elsevier — Science Talks*
- **Giganti**, **A.**, Mandelli, S., Bestagini, P., *et al.*, "Super-Resolution of BVOC Emission Maps Via Domain Adaptation," 2023, *IEEE-IGARSS 2023*
- **Giganti**, **A.**, Mandelli, S., Bestagini, P., *et al.*, "Multi-BVOC Super-Resolution Exploiting Compounds Inter-Connection," 2023, *EURASIP-EUSIPCO 2023*
- **Giganti**, **A.**, Mandelli, S., Bestagini, P., *et al.*, "Super-Resolution of BVOC Maps by Adapting Deep Learning Methods," 2023, *IEEE-ICIP 2023*
- **Giganti**, **A.**, Cuccovillo, L., Bestagini, P., *et al.*, "Speaker-Independent Microphone Identification in Noisy Conditions," 2022, *EURASIP-EUSIPCO 2022*
- Cuccovillo, L., **Giganti**, **A.**, Bestagini, P., *et al.*, "Spectral Denoising for Microphone Classification," 2022, *ACM-ICMR 2022*
- The Sound of AI, "From Words to Sound: Neural Audio Synthesis of Guitar Sounds with Timbral Descriptors," 2022, *AIMC 2022*
- Giganti, A., "Speaker-Independent Microphone Identification via Blind Channel Estimation in Noisy Conditions," 2021, M.Sc. Thesis, *Politecnico di Milano*

Awards

- **3MT Finalist** — EURASIP EUSIPCO'24 – *3-Minute Thesis* competition
- **Grant** — IEEE-GRSS Inspire, Develop, Empower, Advance (IDEA) Microgrant 2024
- **3MT Winner** — IEEE-GRSS M2GARSS'24 – *3-Minute Thesis* competition – 1st Place
- **3MT Finalist** — IEEE-GRSS IGARSS'23 – *3-Minute Thesis* competition
- **Scholarship** — AY 2018/19 and 2019/20; promoted by INPS

Volunteering

- **Technical Staff** — ISMIR 2024
- **Blood Donor** — ADSINT

Certifications

- **School** — IEEE-GRSS IADF, Dec 2023
- **School** — IEEE-EURASIP SPS, Sept 2023
- **Passion in Action** by PoliMi — Maths and Music, Electronics for Sound and Music, Forensics Analysis of Multimedia Objects, High-Performance Graph Analytics
- **CITI Program** — Human Research Group 1 and Group 2

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