

# Luca Comanducci

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## Education

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### Politecnico di Milano

Milan, Italy

PH. D. INFORMATION TECHNOLOGY (CUM LAUDE)

Nov 2018 - March 2022

- Advisor: Prof. Augusto Sarti
- Thesis title: Intelligent networked Music PERforMANce Experiences (IMPERMANENCE)
- Final Grade: cum laude

### Politecnico di Milano

Milan, Italy

M.Sc. IN COMPUTER SCIENCE AND ENGINEERING

Oct. 2015 - April 2018

- Advisor: Prof. Fabio Antonacci
- Thesis title: Convolutional neural networks applied to space-time audio processing applications
- Final Grade: 110/110

### Universidad Carlos III de Madrid

Madrid, Spain

ERASMUS EXCHANGE PROGRAM

Sep. 2013 - Feb. 2014

- Courses in Audiovisual and Computer Engineering

### Università degli Studi di Milano

Milan, Italy

B.Sc. IN MUSIC INFORMATION SCIENCE

Oct. 2011 - Oct. 2014

- Advisor: Prof. Luca Andrea Ludovico
- Thesis title: Physical modeling audio synthesis using Max/Msp
- Final Grade: 102/110

## Professional Experience

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- July 2024- **Non-tenure-track assistant professor (Ricercatore a Tempo Determinato di tipo A)**, at the Department of  
Ongoing Electronics Information and Bioengineering, Politecnico di Milano, Italy
- April  
2022-June **Post Doctoral Researcher (Assegnista di Ricerca)**, at the Department of Electronics Information and  
2024 Bioengineering, Politecnico di Milano, Italy

## Publications

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### BIBLIOMETRICS

Google Scholar (Query Date 13/2/2025) → H-index: 10, Publications: 33, Citations: 342

Scopus (Query Date 13/2/2025) → H-index: 8, Publications: 26, Citations: 244, Citing Articles: 200

Web of Science (Query Date 13/2/2025) → H-index: 6, Publications: 18, Citations: 147, Citing Articles: 128

### INTERNATIONAL JOURNALS

Publications where L.C. is corresponding author are marked with \* after his name.

[J8] **Comanducci, L.\***, Antonacci, F., & Sarti, A. (2024) **Synthesis of soundfields through irregular loudspeaker arrays based on convolutional neural networks**, *EURASIP Journal on Audio, Speech, and Music Processing*

[J7] Miotello, F., Pezzoli, M., **Comanducci, L.**, Antonacci, & Sarti, A. (2023). **Deep Prior-based Audio Inpainting Using Multi-Resolution Harmonic Convolutional Neural Networks**, *IEEE/ACM Transactions on Audio, Speech, and Language Processing*

- [J6] **Comanducci, L.\***, Gioiosa, D., Zanoni, M., Antonacci, F., & Sarti, A. (2023) **Variational Autoencoders for Chord Sequence Generation Conditioned on Western Harmonic Music Complexity**, *EURASIP Journal on Audio, Speech, and Music Processing*
- [J5] Battello, R., **Comanducci, L.\***, Antonacci, F., Cospito, G., & Sarti, A. (2021). **Experimenting with adaptive metronomes in networked music performances**, *Journal of the Audio Engineering Society*, 69(10), 737-747.
- [J4] **Comanducci, L.\***, Bestagini, P., Tagliasacchi, M., Sarti, A., & Tubaro, S. (2021). **Reconstructing speech from cnn embeddings**, *IEEE Signal Processing Letters*, 28, 952-956.
- [J3] **Comanducci, L.\***, Borra, F., Bestagini, P., Antonacci, F., Tubaro, S., & Sarti, A. (2020). **Source localization using distributed microphones in reverberant environments based on deep learning and ray space transform**, *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 28, 2238-2251.
- [J2] Cobos, M., Antonacci, F., **Comanducci, L.**, & Sarti, A. (2020). **Frequency-sliding generalized cross-correlation: A sub-band time delay estimation approach**, *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 28, 1270-1281.
- [J1] Delle Monache, S., **Comanducci, L.**, Buccoli, M., Zanoni, M., Sarti, A., Pietrocola, E., Berbenni, F. & Cospito, G. (2019). **A presence-and performance-driven framework to investigate interactive networked music learning scenarios**, *Wireless Communications and Mobile Computing*, 2019.

#### INTERNATIONAL CONFERENCES

- [C19] Colombo, M. F., Ronchini, F., **Comanducci, L.**, & Antonacci, F. (2024). **MambaFoley: Foley Sound Generation using Selective State-Space Models**, accepted to *2025 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*
- [C18] Albarracín Sánchez, J. C., **Comanducci, L.**, Pezzoli, M. & Antonacci, F. (2024). **Towards HRTF Personalization using Denoising Diffusion Models**, accepted to *2025 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*
- [C17] Ronchini, F., **Comanducci, L.**, & Antonacci, F. (2024). **Synthetic training set generation using text-to-audio models for environmental sound classification**, *2024 Detection and Classification of Acoustic Scenes and Events (DCASE) workshop, Tokyo, Japan*
- [C16] **Comanducci, L.\***, Antonacci, F., & Sarti, A. (2024). **Interpreting End-to-End Deep Learning Models for Speech Source Localization Using Layer-wise Relevance Propagation**, accepted to *2024 32nd European Signal Processing Conference (EUSIPCO)*
- [C15] Ronchini, F., **Comanducci, L.**, Pezzoli, M., Antonacci, F., & Sarti, A. (2024). **Room Transfer Function Reconstruction Using Complex-valued Neural Networks and Irregularly Distributed Microphones**, accepted to *2024 32nd European Signal Processing Conference (EUSIPCO)*
- [C14] Miotello, F., Ostan, P., Pezzoli, M., **Comanducci, L.**, Bernardini, A., Antonacci, F., & Sarti, A. (2024). **HOMULA-RIR: A Room Impulse Response Dataset for Teleconferencing and Spatial Audio Applications Acquired Through Higher-Order Microphones and Uniform Linear Microphone Arrays**. *2024 Hands-Free Speech Communications and Microphone Arrays (HSCMA)*. IEEE.
- [C13] Miotello, F., **Comanducci, L.**, Pezzoli, M., Bernardini, A., Antonacci, F., & Sarti, A. (2024). **Reconstruction of Sound Field through Diffusion Models**. *ICASSP 2024-2024 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*
- [C12] Zumerle, F., **Comanducci, L.**, Zanoni, M., Bernardini, A., Antonacci, F. & Sarti, A. **Procedural music generation for videogames conditioned through video emotion recognition**, accepted at *4th International Symposium on the Internet of Sound (IS<sup>2</sup>2023)*, 2023.
- [C11] Lionetti, D., Pappas, A., Comanducci, L., Bernardini, A., Zanoni, M., Sarti, A., Yee-King, M. & D'Inverno, M. **HandMonizer: a case study for personalized digital musical instrument design**, accepted at *4th International Symposium on the Internet of Sound (IS<sup>2</sup>2023)*, 2023.

- [C10] Olivieri, M., Simeon, F. **Comanducci, L.**, Antonacci, F. & Sarti, A. **JumpApp: an online didactic game for music training and education**, accepted at 4th International Symposium on the Internet of Sound (IS<sup>2</sup>2023), 2023.
- [C9] **Comanducci, L.**, Antonacci, F. & Sarti, A. **Timbre transfer using image-to-image denoising diffusion implicit models**, 24th International Society for Music Information Retrieval Conference (ISMIR 2023), 2023.
- [C8] Olivieri, M., **Comanducci, L.**, Pezzoli, M., Balsarri, D., Menescardi, L., Buccoli, M., Pecorino, S., Grosso, A., Antonacci, F. & Sarti, A. **Real-time multichannel speech separation and enhancement using a beamspace-domain-based lightweight CNN**, ICASSP 2023-2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)
- [C7] **Comanducci, L.**, Antonacci, F., & Sarti, A. **A deep learning-based pressure matching approach to soundfield synthesis**. In 2022 International Workshop on Acoustic Signal Enhancement (IWAENC) (pp. 1-5). IEEE.
- [C6] Borra, F., Pezzoli, M., **Comanducci, L.**, Bernardini, A., Antonacci, F., Tubaro, S., & Sarti, A. **A fast ray space transform for wave field processing using acoustic arrays**. In 2020 28th European Signal Processing Conference (EUSIPCO) (pp. 186-190). IEEE.
- [C5] Battello, R., **Comanducci, L.**, Antonacci, F., Sarti, A., Delle Monache, S., Cospito, G., Pietrocola, E. & Berbenni, F. **An adaptive metronome technique for mitigating the impact of latency in networked music performances**. In 2020 27th Conference of Open Innovations Association (FRUCT) (pp. 10-17). IEEE. ISO 690
- [C4] **Comanducci, L.**, Cobos, M., Antonacci, F., & Sarti, A. **Time difference of arrival estimation from frequency-sliding generalized cross-correlations using convolutional neural networks**. In ICASSP 2020-2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) (pp. 4945-4949). IEEE. ISO 690
- [C3] **Comanducci, L.**, Buccoli, M., Zanoni, M., Sarti, A., Delle Monache, S., Cospito, G., Pietrocola, E., & Berbenni, F. **Investigating networked music performances in pedagogical scenarios for the intermusic project**. In 2018 23rd Conference of Open Innovations Association (FRUCT) (pp. 119-127). IEEE.
- [C2] Pezzoli, M., **Comanducci, L.**, Waltz, J., Agnello, A., Bondi, L., Canclini, A., & Sarti, A. **A dante powered modular microphone array system**. In 2018 Audio Engineering Society Convention 145. Audio Engineering Society.
- [C1] **Comanducci, L.**, Borra, F., Bestagini, P., Antonacci, F., Sarti, A., & Tubaro, S. (2018, September). **Ray space transform interpolation with convolutional autoencoder**. In 2018 16th International Workshop on Acoustic Signal Enhancement (IWAENC) (pp. 261-265). IEEE.

#### NATIONAL CONFERENCES

- [NC2] Delle Monache, S., Buccoli, M., **Comanducci, L.**, Sarti, A., Cospito, G., Pietrocola, E., & Berbenni, F. (2018, November). **Time is not on my side: network latency, presence and performance in remote music interaction**. In Proceedings of the XXII CIM Colloquium on Music Informatics-Machine Sounds, Sound Machines (pp. 152-158).
- [NC1] Baldan, S., Delle Monache, S., & **Comanducci, L.** **His engine's voice: towards a vocal sketching tool for synthetic engine sounds**. In Proceedings of the XX Colloquium on Musical Informatics (CIM), 2014. Università IUAV di Venezia, Rome.

#### BOOK CHAPTERS

- [B3] Ronchini, F. **Comanducci, L.**, Antonacci, F., **Crafting Music and Audio via Textual Descriptions: exploring the Future Evolution of Music Production and Audio Content Generation**, *to-be-published in Springer Proceedings in Humanities and Social Sciences*
- [B2] Delle Monache, S. **Comanducci, L.**, Cospito, G., Sarti, A., Avanzini, F. **Synchronous Online Ensemble Performance**, in *Music, Technology, Innovation: Industry and Educational Perspectives (2024)*, Routledge
- [B1] **Comanducci, L.\*** (2022). **Intelligent Networked Music Performance Experiences**, in *Special Topics in Information Technology* (pp. 119-130). Cham: Springer International Publishing.

## UNDER REVIEW

- [U4] Rinaldi, C., Centofanti, C., **Comanducci, L.**, Pezzoli, M., Bernardini, A., & Antonacci, F. (2024). **Toward Immersive Networked Audio Applications for the Metaverse**, submitted to *IEEE Access*
- [U3] Superbo, R., Gafencu, S. C., Perego, N., Bernardini, A., **Comanducci, L.**, & Oreggia, E. (2024). **A User Study on Electromagnetic Interactions with REBUS**, submitted to *New Interfaces for Musical Expression (NIME)*
- [U2] **Comanducci, L.**, Bestagini, P. & Tubaro, S. (2024). **FakeMusicCaps: a Dataset for Detection and Attribution of Synthetic Music Generated via Text-to-Music Models**, submitted to *2025 International Joint Conference on Neural Networks (IJCNN)*
- [U1] Ronchini, F., **Comanducci, L.**, Perego, G. & Antonacci, F. (2024). **PAGURI: Prompt Audio Generator User Research Investigation**, submitted to *Transactions of the International Society for Music Information Retrieval*

## Participation in International Research Projects

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**REPERTORIUM (Researching and Encouraging the Promulgation of European Repertory through Technologies Operating on Records Interrelated Utilising Machines)**, Grant agreement number 101095065. Horizon Europe. Cluster II. Culture, Creativity and Inclusive Society. Call HORIZON-CL2-2022-HERITAGE-01-02.

My main efforts consist in the co-supervision of two Ph.D. students for the development of solutions for Sound field reconstruction using deep learning techniques [C13,U3]. I also participated in recording sessions for the creation of datasets made through the use of spatial microphones[C14].

**INTERMUSIC (INTERactive environment for MUSIC learning and practising)**, Erasmus + KA2 2017-1-IT02-KA203-036770

(2018-2020) During the project I collaborated with several national and international partners (Conservatorio di Milano, Lithuanian Academy of Music and Theatre, Royal Danish Academy of Music) to study the feasibility of an online platform for music teaching. Specifically, team efforts consisted in the study of the effect of network latency [NC2, C3, J1] and immersivity on musicians as well as the development of an adaptive metronome technique that could help the musicians [C5, J5].

**SkAT-VG (Sketching Audio Technologies using Vocalizations and Gestures)** European-funded project. Internship for development of bachelor thesis, helped in the developing of the project "His Engine's Voice", a synthesizer for car sound based on physical models and controlled by the use of the human voice. Internship done at IUAV University of Venice (May - July 2014) (1 publication [NC1])

## Collaborations with the industry

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**SampleSound** I analyzed the state-of-the-art for concerning generative modeling of music audio samples via textual descriptions. I trained from scratch the MUSICGEN deep learning model by META using data from the company and developing the necessary data pipeline. (2023-2024)

**INVENTVM** Modeling of Piezoelectric Loudspeakers using COMSOL Multiphysics, Role: Researcher. I simulated using COMSOL the behavior of a piezoelectric loudspeaker mounted on a smartphone in order to match measurements that I performed in the anechoic chamber of the Department of Engineering of the Politecnico di Milano. (Jan - Jul 2022)

**BdSound** Deep Learning Algorithms for sound source separation, Role: Researcher. The project entailed the development of deep learning solutions for speech source separation. My main role consisted in the implementation of the data pipeline, training procedure and network of the proposed learning model (1 joint publication [C8]). I also implemented from scratch a model already proposed in the literature used as baseline (2021-2022)

**Google Research Zurich** I collaborated with Prof. Marco Tagliasacchi working on understanding inner workings of Convolutional Neural Networks (CNNs) applied to audio. Specifically, by taking embeddings extracted from pre-trained CNNs and training custom decoders to reconstruct the input speech signals. (1 joint publication [J4]) (2020-2021)

**Eventide Inc.** "eSticks" project between Politecnico di Milano and Eventide Inc. I collaborated for the implementation of spatial audio algorithms used to test the modular microphone array eSticks. (1 joint publication [C2])

**Undisclosed company** Engine sound generation through generative AI models I collaborated in the writing of the proposal and presented my previous work during a visit to the company, contributing to motivate their interest. The content of the project is under Non-disclosure agreement. (2024-2025)

## Teaching Experience

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Ongoing (since 2019)	<b>Creative Programming and Computing - Module 2: Platforms, Interaction Devices and Interface</b> , Teaching Assistant (M.Sc in Music and Acoustic Engineering) Prof. Massimiliano Zanoni (20 Hours in 2019, 2020, 2021, 2024. 25 Hours in 2022. 10 hours in 2023)	Politecnico di Milano
Ongoing (Since 2023)	<b>Music and Acoustic Engineering Capstone</b> , Teaching Assistant (M.Sc in Music and Acoustic Engineering), Prof. Alberto Bernardini (20 Hours in 2023, 15 hours in 2024)	Politecnico di Milano
Spring 2022	<b>Project Course</b> , Teaching Assistant (M.Sc in Music and Acoustic Engineering), Prof. Alberto Bernardini (10 Hours)	Politecnico di Milano
2019-2022)	<b>Musical Acoustics - Module 1: Modeling Of Musical Instruments</b> , Teaching Assistant (M.Sc in Music and Acoustic Engineering) Prof. Fabio Antonacci (20 Hours in 2019, 10 Hours in 2020, 2021 and 2022)	Politecnico di Milano
2020-2022	<b>Musical Acoustics - Module 1: Modeling Of Musical Instruments</b> , Tutor (M.Sc in Music and Acoustic Engineering) Prof. Fabio Antonacci (10 Hours in 2020, 2021, 2022)	Politecnico di Milano
2018	<b>Fundamentals of Computer Science</b> , Teaching Assistant (B.Sc in Computer Engineering and Management Engineering) Prof. Luciano Baresi (20 Hours)	Politecnico di Milano

## Supervision of Master Theses

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2023-2024	<b>Marco Furio Colombo</b> , <i>Mamba-Foley: Time-Controlled Foley Sound Generation using Selective State-Space Models</i> , M.Sc. Thesis in Music and Acoustic Engineering, co-advisor: Francesca Ronchini	Politecnico di Milano
2024-2025	<b>Wenjia Luo</b> , <i>Interaction Design for live performance of acousmatic music (In collaboration with Fondazione Culturale San Fedele)</i> , M.Sc. Thesis in Music and Acoustic Engineering, co-advisor: Francesca Ronchini, Massimo Colombo, Antonio Pileggi, Giovanni Cospito (Fondazione Culturale San Fedele)	Politecnico di Milano
2023-2024	<b>Simone Marcucci</b> , <i>Text-to-music models for creative music practice: a user experience study</i> , M.Sc. Thesis in Music and Acoustic Engineering, co-advisor: Francesca Ronchini	Politecnico di Milano
2023-2024	<b>Guglielmo Fraticcioli</b> , <i>Timbre Transfer using selective state-space models</i> , M.Sc. Thesis in Music and Acoustic Engineering, co-advisor: Francesca Ronchini	Politecnico di Milano
2023-2024	<b>Federico Angelo Luigi Ferreri</b> , <i>Sound Event Detection and Localization using Mel-FSGCC</i> , M.Sc. Thesis in Music and Acoustic Engineering, co-advisor: Francesca Ronchini, Maximo Cobos	Politecnico di Milano
2023-2024	<b>Riccardo Passoni</b> , <i>A Comprehensive Carbon Footprint Analysis of Generative Audio Diffusion Models: Towards Sustainable Sound Synthesis</i> , M.Sc. Thesis in Music and Acoustic Engineering, co-advisor: Francesca Ronchini, Prof. Romain Serizel	Politecnico di Milano

## Co-supervision of Master Theses

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2022-2023	<b>Juan Camilo Albarracín Sánchez</b> , <i>Head-related transfer function generation using denoising diffusion probabilistic models</i> , M.Sc. Thesis in Music and Acoustic Engineering, Advisor: Prof. Mirco Pezzoli.	Politecnico di Milano
2022-2023	<b>Gabriele Perego</b> , <i>Prompt Audio Generator User Research Investigation</i> , M.Sc. Thesis in Music and Acoustic Engineering, Francesca Ronchini, Prof. Massimiliano Zanoni.	Politecnico di Milano
2022-2023	<b>Gabriele Maucione</b> , <i>A study on the effect of dynamic accents on the perception and measurement of rhythm complexity.</i> , M.Sc. Thesis in Music and Acoustic Engineering, Co-advisor: Alessandro Ilic Mezza, Advisor: Prof. Augusto Sarti.	Politecnico di Milano
2022-2023	<b>Francesco Zumerle</b> , <i>Procedural Music Generation For Video games</i> , M.Sc. Thesis in Music and Acoustic Engineering, Advisor: Prof. Massimiliano Zanoni.	Politecnico di Milano
2022-2023	<b>Roberto Alessandri</b> , <i>A deep learning-based method for multi-zone sound field synthesis</i> , M.Sc. Thesis in Music and Acoustic Engineering, Advisor: Prof. Fabio Antonacci.	Politecnico di Milano
2021-2022	<b>Silvio Pol</b> , <i>Timbre Transfer and Interpolation Using a Conditional Convolutional beta-Variational Autoencoder</i> , M.Sc. Thesis in Music and Acoustic Engineering, Advisor: Prof. Massimiliano Zanoni.	Politecnico di Milano
2021-2022	<b>Federico Miotello</b> , <i>A deep prior approach to inpainting of audio signals</i> , M.Sc. Thesis in Music and Acoustic Engineering, Advisor: Prof. Fabio Antonacci, Co-advisor: Prof. Mirco Pezzoli.	Politecnico di Milano
2020-2021	<b>Daide Mori</b> , <i>Towards soundfield rendering with distributed loudspeaker arrays using convolutional neural networks applied to the ray space transform</i> , M.Sc. Thesis in Music and Acoustic Engineering, Advisor: Prof. Fabio Antonacci.	Politecnico di Milano
2020-2021	<b>Daide Gioiosa</b> , <i>Modeling harmonic complexity in automatic music generation using conditional variational autoencoders</i> , M.Sc. Thesis in Music and Acoustic Engineering, Advisor: Prof. Massimiliano Zanoni.	Politecnico di Milano
2019-2020	<b>Alessandro Montali</b> , <i>Interpreting deep neural networks models for acoustic source localization using layer-wise relevance propagation</i> , M.Sc. Thesis in Music and Acoustic Engineering, Advisor: Prof. Fabio Antonacci.	Politecnico di Milano
2019-2020	<b>Matteo Manzolini</b> , <i>Cellular music : a novel music-generation platform based on an evolutionary paradigm</i> , M.Sc. Thesis in Music and Acoustic Engineering, Advisor: Prof. Augusto Sarti, Co-advisor: Dr. Clara Borrelli.	Politecnico di Milano
2019-2020	<b>Minh Cédric Schils</b> , <i>Audio frame reconstruction from incomplete observations using Deep Learning techniques</i> , M.Sc. Thesis in Master en ingénieur civil en informatique, à finalité spécialisée en intelligent systems, Université de Liège Advisors: Prof. Augusto Sarti, Prof. Jean-Jacques Embrechts.	Politecnico di Milano
2019-2020	<b>Riccardo Battello</b> , <i>Techniques for mitigating the impact of latency in networked music performance (NMP) through adaptive metronomes</i> , M.Sc. Thesis in Computer Science and Engineering, Advisor: Prof. Augusto Sarti.	Politecnico di Milano

## Awards, Fellowships, & Grants

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(2022) **Springer Award for the Ph.D. thesis** Politecnico di Milano IT PhD Board of professors. My Ph.D. thesis was selected among the best ones of the IT Ph.D. program of the politecnico di Milano, to be published in a Polimi SpringerBriefs volume [B1].

(2020) **Young Researcher Award** for the paper An Adaptive Metronome Technique for Mitigating the Impact of Latency in Networked Music Performances. Riccardo Battello, Luca Comanducci, Fabio Antonacci, Augusto Sarti, Stefano Delle Monache, Giovanni Cospito, Enrico Pietrocola, Filippo Berbenni. 1st International Workshop on the Internet of Sounds, 27th Conference of Open Innovations Association FRUCT

## Conference and Workshop Talks

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AC- 2024	<b>Artificial Creativity. Looking at the future of Digital Culture</b> , Oral Presentation: Crafting Music and Audio via textual descriptions: Exploring the Future Evolution of Music Production and Audio Content Generation	Milan, IT
XAI-SA 2024	<b>IEEE ICASSP Workshop on Explainable Machine Learning for Speech and Audio</b> , Poster Presentation: Interpreting End-to-End Deep Learning Models for Speech Source Localization Using Layer-wise Relevance Propagation.	Seoul, KR
ISMIR 2023	<b>24th conference of the International Society for Music Information Retrieval (ISMIR)</b> , Poster Presentation: Timbre transfer using image-to-image denoising diffusion implicit models.	Milano, IT
IS <sup>2</sup> 2023	<b>4th International Symposium on the Internet of Sounds</b> , Oral Presentation: Procedural music generation for videogames conditioned through video emotion recognition.	Pisa, IT
IWAENC 2022	<b>17th International Workshop on Acoustic Signal Enhancement, 5-8 September 2022</b> , Poster Presentation: A deep learning-based pressure matching approach to soundfield synthesis.	Bamberg, GE
ICASSP 2022	<b>IEEE International Conference on Acoustics, Speech, and Signal Processing, 22-27 May 2022</b> , Poster Presentation: Reconstructing Speech from CNN embeddings	Online
IWIS 2020	<b>1st IEEE International Workshop on the Internet of Sounds</b> , Oral presentation: An adaptive metronome technique for mitigating the impact of latency in networked music performances, 7-8 September 2020.	Online
ICASSP 2020	<b>IEEE International Conference on Acoustics, Speech, and Signal Processing, 22-27 May 2022</b> , Poster presentation: Time difference of arrival estimation from frequency-sliding generalized cross-correlations using convolutional neural networks	Online
ISAI 2018	<b>IEEE FRUCT International Workshop on Semantic Audio and the Internet of Things, 14-15 November 2018</b> , Oral Presentation: Investigating networked music performances in pedagogical scenarios for the intermusic project	Bologna, IT

## Invited Talks

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16 July 2021	<b>Seminar</b> , Space-time Parametric approach to extended Audio Reality (SP-EAR) /Intelligent Networked Music Performance (with Dr. Mirco Pezzoli)	Valencia, Spain
26 June 2020	<b>Webinar</b> , Ideas, technologies and tools for an e-learning platform dedicated to music, as part of the INTERMUSIC Webinar	online
14 Dec 2024 - Dec 2023	<b>Seminar</b> , Music Complexity, with Dr. Alessandro Illic Mezza, as part of the Computer Music - Representations and Models course of the M.Sc. in Music and Acoustic Engineering, Politecnico di Milano, held by Prof. Alberto Bernardini	Milan, Italy

## Major External Research Collaborations

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**Prof. C. Rinaldi**, (CNIT Consorzio Nazionale Inter-universitario per le Telecomunicazioni, L'Aquila, Italy). Research of novel solutions for immersive audio applications including networked music performances within RESTART – FUNMedia project. (1 submitted joint publication [U1])

**Prof. Mark D'Inverno**, (Goldsmiths, University of London) Co-supervision of two students for the development of an augmented musical instrument (harmonizer) for the jazz singer Maria Pia De Vito (1 joint publication [C11]).

**Prof. Matthew Yee-King** (Goldsmiths, University of London) Co-supervision of two students for the development of an augmented musical instrument (harmonizer) for the jazz singer Maria Pia De Vito (1 joint publication [C11]).

**Dr. Eleonora Oreggia** (Goldsmiths, University of London) Co-supervision of three students as part of the Music and Acoustic Engineering Capstone Course, organizing a workshop to text a digital musical instrument (1 joint submitted publication [U3]).

**Prof. Maximo Cobos** (ETSE Universitat de València Frequency-sliding Generalized Cross Correlation (FSGCC) for time-delay estimation (2 joint publications [J2, C4]) Research visit at ETSE Universitat de València of 2 weeks (july 2021).

- Prof. Marco Tagliasacchi** (Google Research Zurich ) Inverting embedding representations obtained via CNN trained for audio classification (1 joint publication [J4])
- Dr. Stefano Delle Monache** (Delft University of Technology) Study of the effect of latency and immersivity in Networked Music Performance for the INTERMUSIC project (4 joint publications[J1,C5,C3,NC2])
- Prof. Emeritus Giovanni Cospito** (Conservatorio di Milano) Study of the effect of latency and immersivity in Networked Music Performance for the INTERMUSIC project (5 joint publications [J1,J5,C5,C3,NC2])
- Prof. Romain Serizel** (Université de Lorraine, CNRS, Inria, LORIA) Study of the energy consumption and carbon emission of text-to-audio generative models (help in supervision of the M.Sc. thesis of Riccardo Passoni)

## Outreach & Professional Development

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### ORGANIZATION OF EVENTS

5-9 Nov 2023 **24th International Society for Music Information Retrieval Conference (ISMIR)**,  
Organizing Committee, Virtual Technology, Social Media and Website

*Milan*

### REVIEWER FOR INTERNATIONAL JOURNALS

Eurasip Journal on Audio, Speech, and Music Processing  
 IEEE Signal Processing Letters - IEEE  
 Journal of Signal Processing Systems - Springer Nature  
 Journal of the Audio Engineering Society - AES  
 IEEE Communications Magazine  
 IEEE Open Journal of Signal Processing  
 IEEE/ACM Transactions on Audio, Speech and Language Processing

### REVIEWER FOR INTERNATIONAL CONFERENCES

IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2021, 2022, 2024,2025  
 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA) 2021  
 European Signal Processing Conference (EUSIPCO) 2022, 2023, 2024  
 Audio Mostly (2022, 2024)  
 Colloquio di Informatica Musicale (CIM, 2024)  
 NGMSE2024 (2024 IEEE Symposium on Computers and Communications (ISCC)  
 Detection and Classification of Acoustic Scenes and Events Workshop (DCASE) 2024  
 International Joint Conference on Neural Networks (IJCNN 2025)  
 Interspeech 2025  
 New Interfaces for Musical Expression (NIME) 2025  
 International Joint Conference on Neural Networks 2025

### PROFESSIONAL MEMBERSHIPS

IEEE Student Member 2020, 2021, 2022  
 IEEE Member 2024, 2025  
 IEEE Signal Processing Society 2020, 2021, 2022, 2024

### OTHER ACADEMIC SERVICES

**Mentor**, Widening Inclusion in Music Information Retrieval (WiMIR) mentoring program 2024, 2025