

Amandine Brunetto

PH.D. CANDIDATE

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📄 amandine-brunetto

Ph.D. candidate with expertise in multimodal learning, audio signal processing and computer vision. Proven track record of developing innovative solutions and publishing in top-tier conferences. Skilled in designing and implementing cutting-edge machine learning models for real-world applications.

Work Experience

AI Research Scientist

Mines Paris - PSL

November 2022 – present

- Conceptualized and developed novel multimodal generative AI models, achieving state-of-the-art performance in audio generation. Conducted rigorous experimentation and optimization to enhance model performance.
- Pioneered a cross-modal learning framework that integrates neural radiance fields (NeRF) with neural acoustic fields for novel-view audio-visual synthesis, enhancing both visual and auditory realism.
- Engineered solutions leveraging 3D modalities (voxels, point cloud) and advanced audio signal processing techniques to improve model accuracy in complex environments.
- Contributed to the state-of-the-art in AI through publications and presentations at major international conferences.

Computer Vision Engineer

Mines Paris - PSL

May 2022 – September 2022

- Built a robot and developed a complete data recording pipeline to capture multimodal audiovisual data. Processed the data to create a large-scale audio-visual dataset, which was released to the robotics community at IROS 2023.
- Developed monocular depth estimation models using audio cues to boost accuracy in complex scenes.

Research Intern

Mines Paris - PSL

May 2021 – July 2021

- Developed unsupervised deep learning methods for video-based classification of traffic situations, incorporating object detection, classification, and tracking to enhance scene understanding.

Education

Ph.D. in Artificial Intelligence

PSL University

2022 – expected graduation October 2025

Paris, France

- Research topic: Multimodal learning for audio-visual perception enhancement. Under the direction of Pr. Fabien Moutarde.

M.Sc in Technology and Innovation Management

Paris Dauphine - PSL University

2021 – 2022

Paris, France

- Graduated first of the class and with the highest honors.
- Collaborated on diverse interdisciplinary projects, developing creative and innovative solutions to complex challenges.

M.Sc in Engineering

ENSEA

2019 – 2022

Cergy, France

- Specialized in signal processing and computer science.

Publications

ICLR 2025

A. Brunetto, S. Hornauer, F. Moutarde. *NeRAF: 3D Scene Infused Neural Radiance and Acoustic Fields*

Preprint 2024

G. Kasmi, **A. Brunetto**, T. Fel, J. Parekh. *One Wave to Explain them All: A Unifying Perspective on Post-hoc Explainability*

IEEE IROS 2023

A. Brunetto, S. Hornauer, S. Yu, F. Moutarde. *The Audio-Visual BatVision Dataset for Research on Sight and Sound*

Skills

AI: Multimodal learning, computer vision, audio, neural fields, signal processing, acoustic, deep learning and machine learning

Programming: Python, PyTorch, Numpy, Pandas, Librosa, Torchaudio, Git, HPC, Linux

Robotics: ROS, embedded system

Soft skills: Multidisciplinary collaborative work, exploratory project management, popularization of complex topics, creative problem-solving.

Personal Interests

Classically trained musician (piano and flute), with conservatoire experience. I also explore art history as part of a broader interest in culture and visual expression.