Christos Plachouras

I research audio representation learning and audio-language models.
Google PhD Fellow in Machine Perception; Final-year PhD student

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EDUCATION

Queen Mary University of London, Centre for Digital Music (C4DM) — **London, UK**
PhD in Artificial Intelligence and Music — **09/2023 - (09/2027)**
Thesis: Audio-language models and representations – Advisors: Emmanouil Benetos, Johan Pauwels

Universitat Pompeu Fabra, Music Technology Group (MTG) — **Barcelona, Spain**
MSc in Sound and Music Computing – Grade: 9.37/10.00 — **09/2021 - 08/2023**
Thesis: mir_ref: A music audio representation evaluation framework – Advisors: Pablo Alonso, Dmitry Bogdanov

New York University — **Global Program**
BSc in Computer Science, double major in Music – GPA: 3.61/4.00 — **08/2017 - 05/2021**
Thesis: Audio-based hierarchical music structure analysis – Advisor: Carlos Guedes

EXPERIENCE

Earth Species Project — **Remote (London, UK)**
Research Intern — **11/2025 - 05/2026**
- Engineer the next generations of NatureLM, the state-of-the-art audio-language model for bioacoustics.
- Develop and maintain packages for data synthesis and expert evaluation of audio-language models.

Utopia Music — **Berlin, Germany**
Data Scientist (R&D) — **10/2022 - 07/2023**
- Led the formation of an R&D team for massive-scale broadcast monitoring (20m tracks, 20k TV & radio stations)
- Developed efficient deep learning models for granular, large-scale music and sample fingerprinting
- Built tools for generating synthetic broadcasts and extensively evaluating audio fingerprinting systems

Audiostack — **Barcelona, Spain**
R&D Engineer — **01/2022 - 07/2022**
- Developed a system for remixing music recordings to any duration by utilizing their hierarchical structure
- Built an automatic mixing system and plugins for real-time programmatic sound design
- Devised a Speech Synthesis Markup Language (SSML) unification system for cross-provider speech synthesis

Music and Sound Cultures Research Lab, NYU Abu Dhabi — **Abu Dhabi, UAE**
Research Assistant – Advisors: Carlos Guedes, Kaustuv Kanti Ganguli — **05/2018 - 07/2021**
- Created visualizations, content-based indexing, searching, and thumbnailing for large music collections
- Worked on music transcription from audio for mode identification and tuning estimation

Center for Data Science, NYU — **New York, USA**
Research Student – Advisor: Brian McFee — **09/2019 - 05/2020**
- Built methods for hierarchically decomposing music structure from audio
- Developed structure similarity metrics for cover song identification and sound event detection

SKILLS

- **ML Workflow**: Python (PyTorch, Keras), tracking (wandb, MLflow), config (Hydra), versioning (git, av, DVC)
- **Other Programming** *(Intermediate)*: C/C++ (incl. JUCE), MATLAB, JavaScript, HTML, CSS, SQL
- **Infrastructure** *(Intermediate)*: AWS, GCP, Docker, CI/CD (CircleCI, GitHub actions), Linux SysAdmin
- **Multimedia**: Max, SuperCollider, Pure Data, Processing, p5.js, D3.js
- **Languages**: English *(fluent)*, Greek *(native)*, French *(conversational)*

PUBLICATIONS

- **NatureLM-audio 2: Technical report**
  D. Robinson et al.
- **BEANS-Next and ROOTS: Broadening Audio-Language Capabilities for Bioacoustics**
  C. Plachouras et al. - [Under review], 2026 [Paper] [Code]
- **Extending Music Annotation Schemas: Zero-Shot Prediction or Few-Shot Adaptation?**
  C. Plachouras, E. Benetos, J. Pauwels - [Under review], 2026 [Paper] [Code]
- **OmniVideoBench: Towards Audio-Visual Understanding Evaluation for Omni MLLMs**
  C. Li et al. - ICLR 2026 [Paper] [Code]
- **Finetuning Strategies for Querying Sounds by Vocal Imitation**
  A. Bhattacharjee, C. Plachouras, S. Chang, E. Benetos - 1st place, QVIM Challenge, AES AIMLA 2025 [Paper]
- **Towards a Unified Representation Evaluation Framework Beyond Downstream Tasks**
  C. Plachouras, J. Guinot, G. Fazekas, E. Quinton, E. Benetos, J. Pauwels - IJCNN 2025 [Paper] [Code]
- **Learning Music Audio Representations With Limited Data**
  C. Plachouras, E. Benetos, J. Pauwels - ICASSP 2025 [Paper] [Code]
- **Foundation Models for Music: A Review**
  Y. Ma et al. - 2024 [Paper] [Code]
- **mir_ref: A Representation Evaluation Framework for Music Information Retrieval Tasks**
  C. Plachouras, P. Alonso, D. Bogdanov - ML for Audio Workshop, NeurIPS 2023 [Paper] [Code]
- **Music Rearrangement Using Hierarchical Segmentation**
  C. Plachouras, M. Miron - ICASSP 2023 [Paper] [Code]
- **Utilizing Hierarchical Structure for Audio-Based Music Similarity**
  C. Plachouras - LBD, ISMIR 2021 [Paper] [Code]
- **Mapping Timbre Space in Regional Music Collections using Harmonic-Percussive Source Separation (HPSS) Decomposition**
  K. Ganguli, C. Plachouras, S. Şentürk, A. Eisenberg, C. Guedes - Timbre 2020 [Paper]
- **Mapping the Sounds of the Swahili Coast and the Arab Mashriq: Music research at the intersection of computational analysis and cultural heritage preservation**
  K. Trochidis, B. Russell, A. Eisenberg, K. Ganguli, O. Gomez, C. Plachouras, et al. - DLfM 2019 [Paper]

AWARDS AND COMPETITIONS

- **Google PhD Fellowship in Machine Perception** 2026-2028
- **Full-ride scholarship, UKRI Centre for Doctoral Training in AI and Music** 2023-2027
- **Full-ride scholarship, NYU - NYU Abu Dhabi Undergraduate Scholarship** 2017-2021
- 1^{st} place, London Music Tech Hackathon, Music Hackspace – for `thatsoundslike.me` 2025
- 1^{st} place, AES AIMLA Query by Vocal Imitation Challenge 2025
- Travel Grant, Neural Information Processing Systems (NeurIPS) 2023
- Travel Grant, Sound and Music Computing Conference 2019
- Semi-finalist, National Student Mathematics Olympiad, Greece 2014, 2015, 2016

TEACHING

- **Teaching Assistant**, ECS795P Deep Learning and Computer Vision, Graduate level (MSc, PhD), led by Shaogang Gong — Queen Mary University of London, Spring 2025

ACADEMIC SERVICE

- **Organizer**: Chair of *Publicity*, ISMIR (2027); Chair of *New to ISMIR*, ISMIR (2026); DMRN+ 19 (2024)
- **Session Chair**: Position Papers, IJCNN (2025)
- **Volunteer**: ISMIR (2026); ISMIR (2025); NeurIPS (2023)
- **Reviewer**: TISMIR, ISMIR, ICASSP, UKAIRS, AES AIMLA, DMRN since 2024/2025