

Mateo Cámara, Ph.D.

Generative Speech & Audio AI • Assistant Professor, UPM • Former Postdoctoral Fellow, MIT

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Speech and audio AI researcher specializing in generative deep learning – neural and physically grounded articulatory synthesis, variational autoencoders, and self-supervised speech models. Ph.D. *Cum Laude* (Best Doctoral Thesis Award) with a postdoctoral stay at **MIT** and a track record of publications in Q1 journals and top-tier speech/audio conferences (Interspeech, DAFx). Experienced in leading academic–industry projects (Amazon) and co-founding location-intelligence ventures.

EXPERIENCE

Assistant Professor (*Profesor Ayudante Doctor*) Sep 2025 – Present
Universidad Politécnica de Madrid – GAPS *Madrid, Spain*

- Lead the AI architecture of the **TRACES** initiative: multimodal suicide-risk detection from clinical speech (acoustic biomarkers + NLP).
- Teach **Artificial Intelligence** and **signal processing** courses across B.Sc. and M.Sc. programmes.

Postdoctoral Fellow – 6 months Feb 2025 – Jul 2025
Massachusetts Institute of Technology – Research Laboratory of Electronics *Cambridge, MA, USA*

- Built *Transformer*-based models for automatic recognition and labeling of structured acoustic events (speech landmarks), advised by [Dr. Stefanie Shattuck-Hufnagel](#).
- Integrated physical articulatory models into neural voice synthesis, improving control, interpretability, and biological plausibility.
- Work resulting in three Interspeech 2026 papers on acoustic landmark detection and speech timing.

Predoctoral Researcher Sep 2020 – 2025
Universidad Politécnica de Madrid – GAPS *Madrid, Spain*

- Led a cross-functional team with **Amazon** (2023) on an [image-conditioned audio generation system](#) (ImageBIND-based metric, CLIP-to-CLAP module).
- Contributed to national and EU projects (Parkinson’s diagnosis – Plan Nacional; EU Horizon 2020) and released [open educational material on YouTube](#).

Visiting Researcher, Queen Mary University of London ([Prof. J. D. Reiss](#)) *Aug – Dec 2022*

Co-Founder & AI Lead, Pickgeo (Best Startup, ActúaUPM) & [snrgeo](#) *2020 – Present*

EDUCATION

Ph.D. in Neural Audio Synthesis – *Cum Laude* Oct 2020 – Dec 2024
Universidad Politécnica de Madrid – Best Doctoral Thesis Award ([IberSPEECH](#))

- *Generative and parametric models for interactive neural synthesis in speech and audio*. Bridged data-driven generative models with physical speech synthesis; introduced phase-aware decoding.

M.Sc. in Telecommunications Engineering (ABET) 2017 – 2019
Honorable Mention & Extraordinary Final Work Award (COIT)

B.Sc. in Telecommunication Technologies and Services 2012 – 2017
Specialization in Sound and Image

PUBLICATIONS

*Google Scholar: 71 citations, h-index 6, i10-index 3 (June 2026). Name in **bold**.*

- [1] **Mateo Cámara et al.** “An Acoustic Landmark Database of the English Lexicon via Articulatory Synthesis”. In: *Proc. Interspeech*. 2026.

- [2] **Mateo Cámara et al.** “From Silence to Signal: Integrating Acoustic and NLP Analysis to Identify Suicidal Markers in Spanish Radio Archives”. Manuscript in preparation. 2026.
- [3] **Mateo Cámara**, José Luis Blanco, Juan Ignacio Godino-Llorente, Jeung-Yoon Choi and Stefanie Shattuck-Hufnagel. “Acoustic Landmark Detector based on Conformer and HuBERT”. In: *Proc. Interspeech*. 2026.
- [4] **Mateo Cámara**, José Luis Blanco, Juan Ignacio Godino-Llorente, Jeung-Yoon Choi and Stefanie Shattuck-Hufnagel. “Word Lengthening as a Function of Utterance Position: A Multi-Corpus Study”. In: *Proc. Interspeech*. 2026.
- [5] **Mateo Cámara**, María Pilar Daza, Fernando Marcos-Macías and José Luis Blanco. “Differentiable Articulatory Copy-Synthesis of Biphonic Singing”. In: *Proc. 28th Int. Conf. on Digital Audio Effects (DAFx)*. arXiv:2606.04943. 2026.
- [6] **Mateo Cámara**, Fernando Marcos-Macías, Anders R. Bargum, Cumhur Erkut, Joshua D. Reiss and José Luis Blanco. “Neural Audio Synthesis for Sound Effects: A Scope Review”. In: *IEEE/ACM Transactions on Audio, Speech, and Language Processing (Q1)* 34 (2026), pp. 427–445.
- [7] Maria del Carme Pons Royo, **Mateo Cámara, et al.** “High-Throughput Screening of mRNA Precipitate Filterability Using Automated Image Analysis”. In: *Separation and Purification Technology (Q1)* 390 (2026).
- [8] **Mateo Cámara**, José Luis Blanco and Joshua D. Reiss. “Parameter Optimisation for a Physical Model of the Vocal System”. In: *EURASIP Journal on Audio, Speech, and Music Processing (Q1)* 2025(1):27 (2025).
- [9] **Mateo Cámara**, Javier Gutiérrez, María Pilar Daza and José Luis Blanco. “Open-Source System for Multilingual Translation and Cloned Speech Synthesis”. In: *Forum Acusticum Euronoise, Málaga*. 2025.
- [10] **Mateo Cámara** and José Luis Blanco. “Biologically Informed Neural Speech Synthesis”. In: *IberSPEECH (Ph.D. Special Session), Aveiro*. Best Doctoral Thesis Award. 2024.
- [11] **Mateo Cámara**, Fernando Marcos and José Luis Blanco. “Decoding Vocal Articulations from Acoustic Latent Representations”. In: *AES Europe Convention, Madrid*. 2024.
- [12] **Mateo Cámara**, Zhiyuan Xu, Yisu Zong, José Luis Blanco and Joshua D. Reiss. “Optimization Techniques for a Physical Model of Human Vocalisation”. In: *Proc. Int. Conf. on Digital Audio Effects (DAFx), Copenhagen*. 2023.
- [13] David Südholt, **Mateo Cámara**, Zhiyuan Xu and Joshua D. Reiss. “Vocal Tract Area Estimation by Gradient Descent”. In: *Proc. Int. Conf. on Digital Audio Effects (DAFx), Copenhagen*. 2023.
- [14] **Mateo Cámara** and José Luis Blanco. “Expanding the Frontiers of Web Audio With Autoencoders and JavaScript”. In: *Journal of the Audio Engineering Society (Q1)* 70.11 (2022), pp. 979–989.
- [15] **Mateo Cámara** and José Luis Blanco. “Phase-Aware Transformations in Variational Autoencoders for Audio Effects”. In: *Journal of the Audio Engineering Society (Q1)* 70.9 (2022), pp. 731–741.
- [16] Itziar Zabaleta, **Mateo Cámara, et al.** “Retinal Noise Emulation: A Novel Artistic Tool for Cinema That Also Improves Compression Efficiency”. In: *IEEE Access (Q1)* 8 (2020).

AWARDS & HONORS

- **Artificial Intelligence Award**, [X Night of Telecommunications of Madrid](#) (AEIT-Madrid), 2026.
- **Best Doctoral Thesis Award**, [IberSPEECH](#) International Conference, 2024.
- **Santander Post-Doctoral Researchers Fellowship**, 2026 – funding a research stay at Queen Mary University of London.
- **Andrés Lara Award** for Best Conference Paper, 53rd Spanish Acoustics Congress, 2022.
- **First Prize, Best Startup of the Year**, ActúaUPM, 2020.
- **First Prize**, IndesIA Hack Data Analytics Hackathon (National), 2024.

- **European Patent EP3866116** – “Computer-Implemented Method for Adding Texture to a Digital Image,” 2020.
- **First Prize**, McKinsey & Company Data Analytics Hackathon, 2019.
- **First Prize**, ONCE Innovation Challenge – accessibility solutions for people with disabilities.
- **Best Final Telecom Engineering Project**, COIT/AEIT National Award.
- **First Prize**, UPM Short Story Competition, 2025.

OPEN-SOURCE SOFTWARE, MODELS & DATASETS

- **GitHub**: [sota.ai](#) (LLM-assisted state-of-the-art literature reviews), [complex-vae](#) (complex-valued VAE for audio), [neural-pink-trombone](#), and [speech-translator-with-voice-cloning](#).
- **Hugging Face**: open articulatory-synthesis speech datasets (Pink Trombone, VocalTractLab) and Spanish speech / LLM models.
- Released models incl. Spanish LLM fine-tunes (Gemma), Spanish TTS (SpeechT5), and a speech-to-speech translation demo.

RESEARCH STAYS & FUNDING

- **International stays**: MIT, USA (2025) • Queen Mary University of London, UK (2022, 2026) • Mohamed Bin Zayed University of AI, UAE (2026) • Harvard University, USA (2027).
- **Funded projects**: TRACES – multimodal suicide-risk detection (technology lead) • UPM “Primeros Proyectos” grant on acoustic landmark detection (Principal Investigator).
- PID2021-128469OB-I00 – Parkinson’s diagnosis, MICINN (team member, 2022–2026) • DigiEcoQuarry – EU Horizon 2020, €1,044,979 (team member, 2021–2025).

TECHNICAL SKILLS

- **Deep Learning**: PyTorch, TensorFlow/Keras, JAX – VAEs, Transformers, encoder–decoder, U-Net, GANs.
- **Speech & Signal**: Wav2Vec 2.0, HuBERT, EnCodec; FFT/STFT/Mel, phase-aware processing, diarization, acoustic features. **NLP/LLMs**: clinical-text analysis, local inference. **Languages**: Spanish (native), English (C1+).

TEACHING AND SUPERVISION (2021–2026)

- 192 hours of university teaching (B.Sc. Data Engineering; M.Sc. Telecommunication Engineering; M.Sc. Signal Theory and Communications); graduate seminars on VAEs, ASR with Transformers, and scientific data visualization.
- Supervision: 6 completed final-degree projects, 2 in progress. Creator of a [YouTube channel](#) on deep generative models and signal processing.

PROFESSIONAL SERVICE AND MEMBERSHIPS

- Peer reviewer for journals and conferences in signal processing, audio engineering, and machine learning.
- Member of: Sociedad Española de Acústica (SEA), Audio Engineering Society (AES), AEIT, and COIT.