

Thomas Nuttall

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Languages: English, Spanish, Catalan (intermediate)

SUMMARY

AI researcher, engineer, and technical leader. Most recently, I have led the CompMusic project at the Universitat Pompeu Fabra (UPF), a cross-disciplinary project that connects musicians and musicologists with engineers to develop computational tools for musicological research and performance. Through this work, I have taught and organised courses on machine learning, audio signal processing, and computational musicology; given public lectures to large audiences of varying technical backgrounds; organised/led technical workshops and tutorials; and supervised and mentored masters students in engineering.

Previously, I held senior roles in industry, leading the end-to-end development of consumer-facing, machine learning products reaching millions of end users. Aside from hands-on, end-to-end ML product development, I have designed and implemented A/B tests to measure product impact, line managed Data Scientists and Machine Learning Engineers, spoken at industry conferences, and given business performance reports to senior leadership.

Aside from my professional life I am a musician and composer, having performed on multiple instruments in various Barcelona-based groups. Alongside performance I have also organised several music events, including booking, marketing, and technical setup, for *fiestas populares* in Barcelona and for the Phonos Foundation.

I am fluent in English and Spanish, and have an intermediate proficiency in Catalan.

EDUCATION

Universitat Pompeu Fabra Barcelona, Spain
PhD in Department of Engineering 2023 - 2026
ML project lead; teacher; thesis supervisor; public speaker; academic author; open source maintainer

Universitat Pompeu Fabra Barcelona, Spain
MSc Sound and Music Computing 2018 - 2020
Audio signal processing; transformer neural networks; computational musicology

University of Sheffield Sheffield, United Kingdom
BSc Physics 2012 - 2015
Computational statistics; physics of music; WIMP detection

TECHNICAL PROFICIENCY

Experienced: Python; Tensorflow; Pytorch; LLMs; RNNs; Time Series Analysis; Audio Signal Processing; Representation learning

Knowledgeable: R; C++; Javascript; Scala; D3; Dash

EXPERIENCE

Universitat Pompeu Fabra Barcelona, Spain
Research Engineer 2021 - 2022
Academic scholar; maintainer of online datasets repository, tutorial and workshop organiser

Crowdlinker Toronto, Canada
Lead Machine Learning Engineer 2020
Lead engineer on large-scale recommendation and audio tagging project

Typeform Barcelona, Spain
Senior Data Scientist 2020
Topic modeling for user personalization; AB testing; business reporting to executive team

Glovo app Barcelona, Spain
Data Scientist 2019 - 2020
Project Lead on large recommendation project, AB testing, line manager

Channel 4 Television London, United Kingdom
Data Scientist 2015 - 2018
Project lead on award-winning Taste personalization project, line manager, invited talks at industry conferences

CURRENT PROJECTS

Lecturer and Course Coordinator in the Department of Engineering, Universitat Pompeu Fabra: Machine Learning, Audio Signal Processing, Computational Musicology.

Project lead in CompMusic Project: Interdisciplinary research using computational tools for musicological analysis.

Maintainer of CompIAM Tools Repository: Creator and maintainer of open source repository of computational tools for the analysis of Indian Art Music - <https://github.com/MTG/compIAM>.

Organiser of UPF Seminar Series on Computational Musicology: Monthly open seminars of invited talks by musicologists and engineers working to bridge the gap between the two disciplines - <https://mtg.github.io/computational-musicology/>.

Masters Thesis Supervisor in Department Engineering, Universitat Pompeu Fabra: Ongoing supervision of multiple masters students in MSc Sound and Music Computing in the Department of Engineering, Universitat Pompeu Fabra.

Mentor: For junior musicologists interested in interdisciplinary research with engineers. As part of the Slovenian Musicological Society mentorship program.

Guitarist and Composer in Mukti: Barcelona-based band mixing Hindustani folk music with European dance and folk traditions - <https://www.instagram.com/muktimusic/>.

See overleaf for full list of academic publications

BOOK CHAPTERS

- ★ Nuttall, T., Plaja-Roglans, G., Pearson, L., & Serra, X. (2023). “The Matrix Profile for Motif Discovery in Audio: An Example Application in Carnatic Music.” In M. Aramaki, K. Hirata, T. Kitahara, R. Kronland-Martinet, & S. Ystad (Eds.), *Music in the AI Era: 15th International Symposium, CMMR 2021, Virtual Event, November 15–19, 2021, Revised Selected Papers* (Vol. 13770, pp. 228). Springer Nature.

JOURNAL ARTICLES

- ★ Pearson, L., Nuttall, T., Pouw, W., & Pearson, L. “The Co-structuring of Gesture-Vocal Dynamics: An Exploration in Karnatak Music Performance.” *Cognitive Sciences* (2026).
- ★ Plaja-Roglans, G., Nuttall, T., Pearson, L., Serra, X., & Miron, M. “Repertoire-specific vocal pitch data generation for improved melodic analysis of Carnatic Music.” *Transaction of the Int. Society for Music Information Retrieval Conf* (2023).
- ★ Nuttall, T., Garcia Casado, M., Ferraro, A., Conklin, D., & Caro Repetto, R. “A computational exploration of melodic patterns in Arab-Andalusian music.” *Journal of Mathematics and Music* (2021): 1–13.

CONFERENCE PAPERS

- ★ Prabhu, S., Nuttall T., Vijayan, V., & Rocamora, M. “Adapting Deep Learning-based Meter Tracking to Carnatic Music.” *Proceedings of the 23rd Sound and Music Computing Conference, SMC 2026*.
- ★ Nuttall, T., Manickavasakan, B., Serra, X., & Pearson, L. “Boundary Characteristics of Sancara Segments in Carnatic Music.” *Proceedings of the 13th International Conference on Digital Libraries for Musicology, DLFM 2026*.
- ★ Vijayan, V., Nuttall, T., & Serra, X. “A Rāga Independent Encoder for Svara Representation in Carnatic Music.” *Proceedings of the 13th International Conference on Digital Libraries for Musicology, DLFM 2026*.
- ★ **Best Paper Award.** Nuttall, T., Vijayan, V., Serra, X., & Pearson, L. “Leveraging Melodic Context for Improved Svara Representation.” *Proceedings of the 17th International Symposium on Computer Music Multidisciplinary Research, CMMR 2025*.
- ★ Nuttall, T., Serra, X., & Pearson, L. “Computational analyses of coarticulatory processes in Karnatak music.” *Proceedings of the Third International Conference on Computational and Cognitive Musicology, ICCCM 2025*.
- ★ Nuttall, T., Serra, X., & Pearson, L. “Svara-Forms in Carnatic Music: Contextual Influences on the Performance of Svara.” *Workshop on Indian Music Analysis and Generative Applications (WIMAGA), IEEE ICASSP 2025*.
- ★ Shankar, A., Plaja, G., Nuttall, T., Rocamora, M., & Serra, X. “Saraga Carnatic Audiovisual: A Large Multimodal Open Data Collection for the Analysis of Carnatic Music.” *Proceedings of the 25th International Society for Music Information Retrieval Conference, ISMIR 2024*.
- ★ Pearson, L., Nuttall, T., & Pouw, W. “Motif-Gesture Contiguity in Karnatak Vocal Performance: A Multimodal Computational Music Analysis.” Abstract, *2nd International Multimodal Communication Symposium, MMYSM 2024*.
- ★ Nuttall, T., Serra, X., & Pearson, L. “Svara-forms and Coarticulation in Carnatic Music: An Investigation Using Deep Clustering.” *11th International Conference on Digital Libraries for Musicology, DLFM 2024*.
- ★ Pearson, L., Nuttall, T., & Pouw, W. “Motif-Gesture Contiguity in Karnatak Vocal Performance: A Multimodal Computational Music Analysis.” Abstract, *12th Triennial Conference of the European Society for the Cognitive Sciences of Music, ESCOM 2024*.
- ★ Nuttall, T., Plaja, G., Pearson, L., & Serra, X. “In Search of Sañcaras: Tradition-Informed Repeated Melodic Pattern Recognition in Carnatic Music.” *Proceedings of the 23rd International Society for Music Information Retrieval Conference, ISMIR 2022*.
- ★ Nuttall, T., Plaja, G., Pearson, L., & Serra, X. “The Matrix profile for motif discovery in audio: an example application in Carnatic music.” *Proceedings of the 15th International Symposium on Computer Music Multidisciplinary Research, CMMR 2021*.
- ★ Nuttall, T., Haki, B., & Jorda, S. “Transformer Neural Networks for Automated Rhythm Generation.” *New Interfaces for Musical Expression Conference, NIME 2021*.
- ★ Plaja, G., Nuttall, T., Serra, X., & Mirion, M. “Continuing CompMusic: New approaches in the computational analysis of Carnatic Music.” *Proceedings of the 26th International Symposium on Frontiers of Research in Speech and Music, FRSM 2021*.
- ★ Nuttall, T., Garcia Casado, M., Caro Repetto, R., & Serra, X. “Contributing to new musicological theories with computational methods: the case of centonization in Arab-Andalusian music.” *Proceedings of the 20th International Society for Music Information Retrieval Conference, ISMIR 2019*.

WORKSHOPS, TUTORIALS, AND TALKS

- ★ Nuttall, T., Plaja, G., Pearson, L., & Manickavasakan, B. “Computational Methods For Supporting Corpus-Based Research On Indian Art Music.” Tutorial, *23rd International Society for Music Information Retrieval Conference, ISMIR. Indian Institute of Science, Bangalore, 2022*.
- ★ Nuttall, T., Plaja, G., et al. “CompMusic workshop 2022: Introduction to Computational Musicology, a Carnatic Music perspective.” 5-day Satellite workshop, *23rd International Society for Music Information Retrieval Conference, ISMIR. Indian Institute of Technology Madras, Chennai, 2022*.
- ★ Nuttall, T. “Svara Performance in Carnatic Music and its Implication for Melodic Analysis Tasks.” Invited talk, *Workshop on AI applications for Indian Music*, Indian Institute of Technology, Hyderabad, 2025.
- ★ Nuttall, T. “Segmenting Channel 4 Viewers using LDA Topic Modelling.” Invited talk, *PyData London, 2017*.