

Lorenzo Picinali**MIET, PhD, MSc, BSc**

Dyson School of Design Engineering

Imperial College London

Imperial College Road SW7 2DB

l.picinali@imperial.ac.ukORCID: orcid.org/0000-0001-9297-2613**EDUCATION**

- 2011 **De Montfort University, Leicester, UK**
PhD in Music Technology
- 2013 **De Montfort University, Leicester, UK**
MSc in Auditory Science
- 2005 **Università degli Studi, Milano, Italy**
BSc in Science and Technologies for the Musical Communication

WORK EXPERIENCE

- Since 2015 **Imperial College London** **UK**
Reader in Audio Experience Design
- Director of Undergraduate Studies (2015 - 2020)
 - Lead of the Audio Experience Design research theme (2017 - current)
 - Senior Tutor (2015 - 2016)
- 2009-2015 **De Montfort University** **UK**
Senior Lecturer in Audio/Music Technology
- Faculty Head of Research Operations (2014 - 2015)
 - Faculty Head of Research Students (2014 – 2015)
 - Coordinator of the Interactive and Media Technologies (IMT) group
- 2007-2008 **IRCAM-CNRS** **France**
Research Assistant
- Development and implementation of interactive sonification techniques for protein docking and computational fluid-dynamics data
 - Development, implementation and evaluation of virtual reality interactive applications for visually impaired individuals

RESEARCH INTERESTS

Binaural auralization: binaural spatialisation algorithms, HRTF measurement and synthesis, performance of individualized and non-individualized HRTFs, HRTF adaptation, psychophysiology of spatial hearing

Acoustics: creation and auralization of room models, room acoustics, musical acoustics, real-time 3D audio

Hearing science: spatial hearing, speech perception, VR-based hearing assessment and training

Audio-haptics interaction design and multimodal interfaces

Others: auditory displays, sonification, eco-acoustic monitoring, sound recording, mixing and mastering techniques

SELECTED PUBLICATIONS

- [1] Engel, I., Henry, C., Amengual Garí, S. V., Robinson, P. W., & Picinali, L. (2021). Perceptual implications of different Ambisonics-based methods for binaural reverberation. *The Journal of the Acoustical Society of America*, 149(2), 895-910.
- [2] Comunità, M., Gerino, A., Lim, V., & Picinali, L. (2021). Design and Evaluation of a Web-and Mobile-Based Binaural Audio Platform for Cultural Heritage. *Applied Sciences*, 11(4), 1540.
- [3] Kim, C., Lim, V., Picinali, L. (2020). Investigation into Consistency of Subjective and Objective Perceptual Selection of Non-individual Head-Related Transfer Functions. *Journal of the Audio Eng Soc*, Vol. 68(11), pp. 819-831.
- [4] Sethi, S.S., Jones, N.S., Fulcher, B.D., Picinali, L., Clink, D.J., Klinck, H., Orme, C.D.L., Wrege, P.H. & Ewers, R. M. (2020). Characterizing soundscapes across diverse ecosystems using a universal acoustic feature set. *Proceedings of the National Academy of Sciences*, Vol. 117 (29), pp. 17049-17055.
- [5] Griffin, E., Picinali, L., & Scase, M. (2020). The effectiveness of an interactive audio-tactile map for the process of cognitive mapping and recall among people with visual impairments. *Brain and Behavior*, e01650.
- [6] Steadman, M. A., Kim, C., Lestang, J. H., Goodman, D. F., & Picinali, L. (2019). Short-term effects of sound localization training in virtual reality. *Scientific Reports*, Vol. 9(1), 1-17.
- [7] Cuevas-Rodríguez, M., Picinali, L., González-Toledo, D. et al. (2019). 3D Tune-In Toolkit: An open-source library for real-time binaural spatialisation. In *PloS one*, 14(3), e0211899.
- [8] Stitt, P., Picinali, L., & Katz, B. F. (2019). Auditory accommodation to poorly matched non-individual spectral localization cues through active learning. *Scientific reports*, Vol. 9(1), 1-14.
- [9] Sethi, S., Ewers, M. R., Jones, N., Orme, C. D. & Picinali, L. (2018). Robust, real-time and autonomous monitoring of ecosystems with an open, low-cost, networked device. In *Methods in Ecology and Evolution*. 9(12), 2383-2387.

- [10] Caraffini, F., Neri, F. & Picinali, L. (2014). An Analysis on Separability for Memetic Computing Automatic Design. In *Information Sciences*, Elsevier, May 2014, Vol. 265, 1-22.
- [11] Picinali, L., Afonso, A., Denis, M. & Katz, B.F.G. (2014). Exploration of Architectural Spaces by Blind People using Auditory Virtual Reality for the Construction of Spatial Knowledge. In *International Journal of Human Computer Studies*, Elsevier, April 2014, Vol. 72(4), 393-407.

BOOK CHAPTERS

- [1] Katz, B.F.G. & Picinali, L. (2011). Spatial Audio Applied to Research with the Blind. In *Advances in Sound Localization*, Sturmillo, P. Ed. INTECH, April 2011, ISBN: 978-953-307-224-1
- [2] Picinali L. (2009) 3D Sound on Headphones: Simulation and Alteration of Nature. In *Handbook of Research on Computational Art and Creative Informatics*, J. Braman, G, Vincenti & G. Trajkovski Eds., Information Science Reference (IGI Global).

SELECTED SUCCESSFUL GRANT APPLICATIONS

- [1] EU-H2020 FET-Proact (Contract 101017743). SONICOM - *Transforming auditory-based social interaction and communication in AR/VR*, **€5.6m**. Role: PI and Project Coordinator. **2021-2026**
- [2] NIHR Programme Grant for Applied Research. Both EARS training package (BEARS) to maximise hearing abilities in teenage bilateral cochlear implant users. **£2.5m**. Role: PI for Imperial College London. **2021-2026**
- [3] Oticon Foundation. Speech Perception and Listening Effort in Simulated Realistic Audio-visual Environments. **£350k**. Role: PI for Imperial College London. **2019-2022**
- [4] EU-H2020 (Contract 726765). PLUGGY - *Pluggable Social Platform for Heritage Awareness and Participation*, **€2.3m**. Role: PI for Imperial College London. **2016-2019**
- [5] EU-H2020 (Contract 644051). *3D-Tune-In - 3D-games for TUNing and IEarnINg about hearing aids*, **€3m**. Role: PI and Project Coordinator. **2015-18**
- [6] EU-FP7 (Contract 611650). *DOREMI - Decrease of cOgnitive decline, malnutRition and sedEntariness by elderly empowerment in lifestyle Management and social Inclusion*, **€2.6m** Role: named researcher. **2013-14**
- [7] Arts and Humanities Research Council (AHRC), Grant Reference: AH/K007610/1. Follow on funding for the project *Digital Building Heritage: Phase II*, **£71k**, Role: CI. **2013**

SELECTED INDUSTRY EXPERIENCE

- [1] **Scottish Water**. Use of audio recording techniques for detecting cavitation in large water valves. Role: CI. **2014**
- [2] **GNReSound UK**. *Binaural Fusion Demo*. Role: PI. **2013**

SELECTED INVITED TALKS AND KEYNOTES

- [1] *The 3D Tune-In Project*. Keynote at the 2018 AIHHP Hearing Expo, Warwick, February 2018.
- [2] Invited talks at UCL, Southampton, Oldenburg (Germany), Vienna (Austria), Parma (Italy), Nottingham and the Institute of Acoustics (London) in 2017-19 to present the 3D Tune-In Toolkit
- [3] *3D Tune-In: interactive gaming, 3D audio and other applications to facilitate the use of hearing aids*. Invited talk at the British Academy of Audiology's 14th Annual Conference, November 2017.

MEMBERSHIPS

- [1] Member of the **Institute of the Engineering and Technology (IET)**, **Audio Engineering Society**, **Acoustical Society of America**, **European Association for Virtual and Augmented Reality (EuroVR)**
- [2] Member of **Abbey Road Spatial Audio Forum** (<https://www.abbeyroad.com/spatial-audio>)
- [3] Member of **AABBA - Aural Assessment By means of Binaural Algorithms** (<https://bit.ly/2WQfUk6>)

AWARDS, EDITORIAL ROLES, REVIEWS AND CONFERENCE CONTRIBUTIONS

- [1] NETEXPLO Observatory (UNESCO). Innovation Forum Award, one of the 100 most outstanding innovations in 2018. *Automatic biodiversity monitoring* - <https://netexplo.com/n100/> (2019)
- [2] NHS CSO Healthcare Science Award won by the 3D Tune-In project for the category of Healthcare Science Partnering Patients and Citizens (2018).
- [3] Member of the Technologies for VR (specialty section of Frontiers in Virtual Reality) Editorial Board
- [4] Member of the Displays (Elsevier) Editorial Board
- [5] Full member of the EPSRC Peer Review College
- [6] Chair, panelist and reviewer for several international conferences (e.g. IEEEVR, ACM, AES, ICSV), journals (e.g. IJHCS, IEEE Transactions, Cognitive Computation) and funding bodies (e.g. EPSRC, AHRC)
- [7] Vice Chancellor's Distinguished Teaching Award 2013, Faculty of Technology, De Montfort University

DEVELOPED TOOLS (HW & SW)

- [1] The BEARS applications suite - <https://www.youtube.com/watch?v=cvPReMtBGik&t=100s>
- [2] The *3D Tune-In Toolkit*. A standard C++ library for binaural spatialisation, hearing loss and hearing aid emulation. https://github.com/3DTune-In/3dti_AudioToolkit/
- [3] *Safe Acoustics* portal. <http://acoustics.safeproject.net/>
- [4] *Ecosystem monitoring tools*. https://sarabsethi.github.io/autonomous_ecosystem_monitoring/
- [5] *Anaglyph*. Binaural spatialisation tool (VST Plugin). <http://anaglyph.dalembert.upmc.fr/>