CURRICULUM VITAE

Enzo De Sena
Professor (Full Professor)
Director, Institute of Sound Recording (IoSR)
University of Surrey
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Highlights

- Research funding as PI: £5.0M, £3.9M of which externally
- Research showcased at: National Gallery, Royal Society Science Exhibition, Bell Labs, WOMAD, IBC...
- Research appeared in: diMartedì (3M view.), Quinta Dimensione (1M view.), Financial Times (1M circ.)...
- Recognition: co-recipient best paper WASPAA '21, AVAR '22, AES Europe '25; IEEE SM and AASP TC Member
- PhD supervision: 4 current + 5 awarded
- Visiting positions: Stanford, Imperial, Aalborg, KU Leuven, KCL
- Conference tutorials: ICASSP '15, EUSIPCO '17, AVAR '20, ICASSP '21
- Conference keynotes: UK and Ireland Speech conference '23
- Conference organisation: Demo chair 60th AES Int. Conf., General Chair DAFx 2024 (160 attendees)
- Admin.: MSc Projects Coord. (2012); Dept. Dir. Internationalisation (2016–2023); IoSR Director (2023–)
- Teaching: leader of 9 BSc/MSc modules (2 currently); MEQ 100% in 2022/23, 88% in 2023/24
- Examination: 6 PhD; external examiner for Salford's MSc Acoustics and Music Tech and Edinburgh's MSc Acoustics
- Editorial boards: associate editor for EURASIP JASM (IF: 2.7) and IEEE/ACM TASLP (IF: 4.7)

1. University education

2017 – 2018	Grad. Cert. in Learning & Teaching	University of Surrey, UK
2009 – 2013	Ph.D. Elect. Eng. (EPSRC funded)	King's College London, UK
2007 – 2009	M.Sc. Telecom. Eng., *cum laude*	Università degli Studi di Napoli "Federico II", Italy
2003 – 2007	B.Sc. Telecom. Eng.	Università degli Studi di Napoli "Federico II", Italy

2. Employment since graduation

Research and teaching positions

2025/04 – present	Professor (Research and Teaching)	University of Surrey, UK
2023/08 – 2025/03	Associate Professor (Research and Teaching)	University of Surrey, UK
2021/08 – 2023/07	Senior Lecturer (Research and Teaching)	University of Surrey, UK
2016/09 – 2021/07	Lecturer B (Research and Teaching)	University of Surrey, UK
2013/09 – 2016/08	Postdoctoral Research Fellow (Marie Curie ITN, F+)	KU Leuven, Belgium
2012/08 – 2013/08	Teaching Fellow	King's College London, UK

Visiting positions

2018/08 – 2020/08	Visiting Researcher	King's College London, UK
2016/09 – 2017/09	Free Researcher	KU Leuven, Belgium
2016/02 – 2016/09	Visiting Researcher	Imperial College London, UK
2014/10 – 2015/01	Visiting Researcher	Aalborg University, Denmark
2013/08 – 2013/09	Visiting Researcher	Stanford University, USA

3. Research and scholarly outputs

Peer-reviewed international journal publications

[1] M. Scerbo, S. J. Schlecht, R. Ali, L. Savioja, and E. De Sena, "Modeling nonuniform energy decay through the modal decomposition of acoustic radiance transfer (mod-art)," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, 2025.

[2] T. Dietzen, E. De Sena, and T. van Waterschoot, "Scalable-complexity steered response power based on low-rank and sparse interpolation," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 32, pp. 5024–5039, 2024.
[3] A. Ilic Mezza, R. Giampiccolo, E. De Sena, and A. Bernardini, "Data-driven room acoustic modeling via differentiable feedback delay networks with learnable delay lines," *EURASIP J. Audio, Speech, and Music Processing*, 2024.
[4] S. Schlecht, M. Scerbo, E. De Sena, and V. Valimaki, "Modal excitation in feedback delay networks," *IEEE Signal Processing Lett.*, 2024.
[5] M. Scerbo, L. Savioja, and E. De Sena, "Room acoustic rendering networks with control of scattering and early reflections," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 32, pp. 3745–3758, 2024.
[6] J. Mannall, L. Savioja, P. Calamia, R. Mason, and E. De Sena, "Efficient diffraction modelling using neural networks and infinite impulse response filters," *J. Audio Eng. Soc.*, vol. 71, no. 9, pp. 566–576, 2023.
[7] O. Das, S. J. Schlecht, and E. De Sena, "Grouped feedback delay networks with frequency-dependent coupling," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 19, pp. 2004–2015, 2023.
[8] T. Potter, Z. Cvetković, and E. De Sena, "On the relative importance of visual and spatial audio rendering on VR immersion," *Frontiers in Signal Process.*, 2022.
[9] J. Franco, B. Bacila, T. Brookes, and E. De Sena, "A multi-angle, multi-distance dataset of microphone impulse responses," *J. Audio Eng. Soc.*, vol. 70, no. 10, pp. 882–893, 2022.
[10] T. Berk Atala, Z. Sü Gül, E. De Sena, Z. Cvetković, and H. Hacıhabiboğlu, "Scattering delay network simulator of coupled volume acoustics," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 30, pp. 582–593, 2022.
[11] B. Fitzpatrick, E. De Sena, and T. van Waterschoot, "On the convergence of the multipole expansion method," *SIAM Journal on Numerical Analysis*, 2021.
[12] E. De Sena, Z. Cvetković, H. Hacıhabiboğlu, M. Moonen, and T. van Waterschoot, "Localization uncertainty in time-amplitude stereophonic reproduction," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 28, pp. 1000–1015, 2020.
[13] N. Antonello, E. De Sena, M. Moonen, P. A. Naylor, and T. van Waterschoot, "Joint acoustic localization and dereverberation through plane wave decomposition and sparse regularization," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 27, no. 12, pp. 1893–1905, 2019.
[14] G. Vairetti, E. De Sena, M. Catrysse, S. H. Jensen, M. Moonen, and T. v. Waterschoot, "An automatic design procedure for low-order IIR parametric equalizers," *J. Audio Eng. Soc.*, vol. 66, no. 11, pp. 935–952, 2018.
[15] D. Pelegrin-Garcia, E. De Sena, T. van Waterschoot, M. Rychtáriková, and C. Glorieux, "Localization of a virtual wall by means of active echolocation by untrained sighted persons," *Appl. Acoust.*, vol. 139, pp. 82–92, 2018.
[16] G. Vairetti, N. Kaplanis, E. De Sena, S. H. Jensen, S. Bech, M. Moonen, and T. Van Waterschoot, "The Subwoofer Room Impulse Response database (SUBRIR)," *J. Audio Eng. Soc.*, vol. 65, no. 5, pp. 389–401, 2017.
[17] N. Antonello, E. De Sena, M. Moonen, P. A. Naylor, and T. van Waterschoot, "Room impulse response interpolation using a sparse spatio-temporal representation of the sound field," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 25, no. 10, pp. 1929–1941, 2017.
[18] G. Vairetti, E. De Sena, M. Catrysse, S. H. Jensen, M. Moonen, and T. van Waterschoot, "A scalable algorithm for physically motivated and sparse approximation of room impulse responses with orthonormal basis functions," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 25, no. 7, pp. 1547–1561, 2017.
[19] H. Hacıhabiboglu, E. De Sena, Z. Cvetković, J. Johnston, and J. Smith, "Perceptual spatial audio recording, simulation, and rendering: An overview of spatial-audio techniques based on psychoacoustics," *IEEE Sig. Proc. Mag.*, vol. 34, no. 3, pp. 36–54, 2017.
[20] E. D. Sena, M. Brookes, P. A. Naylor, and T. van Waterschoot, "Localization experiments with reporting by head orientation: Statistical framework and case study," *J. Audio Eng. Soc.*, vol. 65, no. 12, pp. 982–996, 2017.
[21] E. De Sena, H. Hacıhabiboğlu, Z. Cvetković, and J. Smith, "Efficient synthesis of room acoustics via scattering delay networks," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 23, no. 9, pp. 1478–1492, 2015.
[22] E. De Sena, N. Antonello, M. Moonen, and T. van Waterschoot, "On the modeling of rectangular geometries in room acoustic simulations," *IEEE/ACM Trans. Audio, Speech, Language Proc.*, vol. 23, no. 3, pp. 774–786, 2015.
[23] E. De Sena, H. Hacıhabiboğlu, and Z. Cvetković, "Analysis and design of multichannel systems for perceptual sound field reconstruction," *IEEE Trans. Audio, Speech, Language Proc.*, vol. 21, no. 8, pp. 1653–1665, 2013.
[24] ——, "On the design and implementation of higher order differential microphones," *IEEE Trans. Audio, Speech, Language Proc.*, vol. 20, no. 1, pp. 162–174, 2012.

Peer-reviewed international conference papers

[25] P. Llado, A. Neidhardt, A. Souchaud, Z. Cvetkovic, and E. De Sena "Perceptually-driven panning for an extended listening area," in *IEEE Workshop Appl. of Signal Proc. to Audio and Acoustics (WASPAA)*, 2025.

[26] A. Souchaud, P. Llado, A. Neidhardt, Z. Cvetkovic, and E. De Sena "White-box differentiable model of perceived localisation," in *IEEE Int. Workshop on Multimedia Signal Proc. (MMSP)*, 2025.

[27] A. Ilic Mezza, R. Giampiccolo, E. De Sena, and A. Bernardini "Differentiable scattering delay networks for artificial reverberation," in *Proc. Int. Conf. on Digital Audio Effects (DAFx)*, 2025 (accepted).

[28] A. Neidhardt, T. Surdu, P. Llado, and E. De Sena "Subjective evaluation of the first incoming reflection - revisiting and extending barron's study," in *Proc. Forum Acusticum Euronoise*, 2025 (accepted).

[29] A. Neidhardt, B. Thwaite, J. Mannall, and E. De Sena "Evaluation of room simulation approximations for ar audio considering a flipped loudspeaker scenario," in *Proc. AES Int. Conf. on Headphone Tech.*, 2025 (accepted).

[30] J. Mannall, A. Neidhardt, R. Mason, L. Savioja, and E. De Sena "Roomacoustic++: An open-source room acoustic model for real-time audio simulations," in *Proc. AES Int. Conf. on Headphone Tech.*, 2025 (accepted).

[31] P. Llado, A. Neidhardt, F. Brinkmann, and E. De Sena "Spatial audio models' inventory (SAMI) to cover the SAQI attributes," in *Proc. Forum Acusticum Euronoise*, 2025 (accepted).

[32] M. Rada, R. Mason, and E. De Sena "Immersive music production workflows: An ethnographic study of current practices," in *presented at the AES 158th Convention*, 2025 **[Best Student Paper Award]**.

[33] S. Koyama, E. De Sena, P. Samarasinghe, M. R. Thomas, and F. Antonacci "Past, present, and future of spatial audio and room acoustics," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2025.

[34] W. J. Cassidy, P. Coleman, R. Mason, and E. De Sena "Naturalness of double-slope decay in generalised active acoustic enhancement systems," in *Proc. Int. Conf. on Digital Audio Effects (DAFx)*, 2024.

[35] M. Scerbo, S. J. Schlecht, R. Ali, L. Savioja, and E. De Sena "A common-slopes late reverberation model based on acoustic radiance transfer," in *Proc. Int. Conf. on Digital Audio Effects (DAFx)*, 2024.

[36] J. Mannall, P. Calamia, L. Savioja, A. Neidhardt, R. Mason, and E. De Sena "Assessing diffraction perception under reverberant conditions in virtual reality," in *Proc. of the AES Int. Conf. on Audio for Virtual and Augmented Reality (AVAR)*, 2024.

[37] A. Emthyas, A. Neidhardt, S. V. A. Garí, and E. De Sena "Spatial interpolation and extrapolation of binaural room impulse responses via system inversion," in *Proc. of the AES Int. Conf. on Audio for Virtual and Augmented Reality (AVAR)*, 2024.

[38] A. Emthyas, S. V. Amengual Garí, and E. De Sena "Binaural room transfer function interpolation via system inversion," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2024.

[39] N. Marggraf-Turley, M. Lovedee-Turner, and E. De Sena "HRTF recommendation based on the perceptual binaural colouration model," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2024 (accepted).

[40] O. Das and E. De Sena "The complex image method for simulating wave scattering in room acoustics," in *Proc. Int. Conf. on Immersive and 3D Audio (I3DA)*, 2023.

[41] B. Burnett, A. Neidhardt, Z. Cvetković, H. Hacıhabiboğlu, and E. De Sena "User expectation of room acoustic parameters in virtual reality environments," in *Proc. Int. Conf. on Immersive and 3D Audio (I3DA-23)*, 2023.

[42] L. Vinceslas, M. Scerbo, H. Hacıhabiboğlu, Z. Cvetković, and E. De Sena "Low-complexity higher order scattering delay networks," in *IEEE Workshop Appl. of Signal Proc. to Audio and Acoustics (WASPAA)*, 2023.

[43] R. Ali, T. Dietzen, M. Scerbo, L. Vinceslas, T. van Waterschoot, and E. De Sena "Relating geometric and wave-based acoustics using a stationary phase approximation of the boundary integral equation," in *Proc. Forum Acusticum*, 2023.

[44] S. Weiss, S. J. Schlecht, O. Das, and E. De Sena "Polynomial procrustes problem: Paraunitary approximation of matrices of analytic functions," in *Proc. European Signal Processing Conf. (EUSIPCO)*, 2023.

[45] W. J. Cassidy and E. De Sena "Perceptual evaluation and genre-specific training of deep neural network models of a high-gain guitar amplifier," in *Proc. Int. Conf. on Digital Audio Effects (DAFx)*, 2023.

[46] J. Mannall, O. Das, P. Calamia, and E. De Sena "Perceptual evaluation of low-complexity diffraction models from a single edge," in *Proc. of the AES Int. Conf. on Audio for Virtual and Augmented Reality (AVAR)*, 2022 **[Best Paper Award]**.

[47] M. Scerbo, O. Das, P. Friend, and E. De Sena "Higher-order scattering delay networks for artificial reverberation," in *Proc. Int. Conf. on Digital Audio Effects (DAFx)*, 2022.

[48] T. Dietzen, E. De Sena, and T. van Waterschoot "Low-complexity steered response power mapping based on nyquist-shannon sampling," in *IEEE Workshop Appl. of Signal Proc. to Audio and Acoustics (WASPAA)*, 2021 **[Best Acoustic Source Localization Paper Award]**.

[49] L. Gaston-Bird, R. Mason, and E. De Sena "Inclusivity in immersive audio: Current participation and barriers to entry," in *Proc. Audio Eng. Soc. Int. Conf. on Audio Education*, 2021.

[50] S. Djordjevic, H. Hacıhabiboğlu, Z. Cvetković, and E. De Sena "Evaluation of the perceived naturalness of artificial reverberation algorithms," in *presented at the 148th Audio Eng. Soc. Conv., Preprint #10353, Vienna, Austria*, 2020.

[51] E. Erdem, E. De Sena, H. Hacıhabiboğlu, and Z. Cvetković "Perceptual soundfield reconstruction in three dimensions via sound field extrapolation," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2019, pp. 8023–8027.

[52] J. Camilleri, N. Kaplanis, and E. De Sena "Evaluation of car cabin acoustics using auralisation over headphones," in *Proc. Audio Eng. Soc. Int. Conf. on Immersive and Interactive Audio*, 2019.

[53] P. Dawson, E. De Sena, and P. A. Naylor "An acoustic image-source characterisation of surface profiles," in *Proc. European Signal Processing Conf. (EUSIPCO)*, 2018, pp. 2130–2134.

[54] L. Lightburn, E. De Sena, A. Moore, P. A. Naylor, and M. Brookes "Improving the perceptual quality of ideal binary masked speech," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2017, pp. 661–665.

[55] G. Vairetti, S. H. Jensen, E. De Sena, M. Moonen, M. Catrysse, and T. van Waterschoot "Multichannel identification of room acoustic systems with adaptive filters based on orthonormal basis functions," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2016, pp. 16–20.

[56] C. S. Doire, M. Brookes, P. A. Naylor, E. De Sena, T. van Waterschoot, and S. H. Jensen "Acoustic environment control: Implementation of a reverberation enhancement system," in *Proc. 60th Audio Eng. Soc. Int. Conf.*, 2016.

[57] N. Antonello, E. De Sena, M. Moonen, P. A. Naylor, and T. van Waterschoot "Sound field control in a reverberant room using the finite difference time domain method," in *Proc. 60th Audio Eng. Soc. Int. Conf.*, 2016.

[58] G. Vairetti, E. De Sena, M. Catrysse, S. H. Jensen, M. Moonen, and T. van Waterschoot "Room acoustic system identification using orthonormal basis function models," in *Proc. 60th Audio Eng. Soc. Int. Conf.*, 2016.

[59] E. De Sena, N. Kaplanis, P. A. Naylor, and T. van Waterschoot "Large-scale auralised sound localisation experiment," in *Proc. 60th Audio Eng. Soc. Int. Conf.*, 2016.

[60] G. Vairetti, E. De Sena, T. van Waterschoot, M. Moonen, M. Catrysse, N. Kaplanis, and S. H. Jensen "A physically motivated parametric model for compact representation of room impulse responses based on orthonormal basis functions," in *Proc. of the 10th Eur. Congr. and Expo. on Noise Control Eng.(EURONOISE 2015)*, 2015, pp. 149–154.

[61] E. De Sena and Z. Cvetković "A computational model for the estimation of localisation uncertainty," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2013 **[Nominee for AASP Best Student Paper Award (top 6 of 348 submissions)]**.

[62] E. De Sena, H. Hacıhabiboğlu, and Z. Cvetković "A generalized design method for directivity patterns of spherical microphone arrays," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, Prague, Czech Republic, 2011.

[63] ——, "Scattering delay network: An interactive reverberator for computer games," in *Proc. 41st Audio Eng. Soc. Int. Conf.: Audio for Games*, London, UK, 2011.

[64] H. Hacıhabiboğlu, E. De Sena, and Z. Cvetković "Frequency-domain scattering delay networks for simulating room acoustics in virtual environments," in *Proc. Signal-Image Technology and Internet-Based Systems (SITIS)*, 2011, pp. 180–187.

[65] E. De Sena, H. Hacıhabiboğlu, and Z. Cvetković "Perceptual evaluation of a circularly symmetric microphone array for panoramic recording of audio," in *Proc. 2nd Int. Symp. on Ambisonics, and Spherical Acoustics*, Paris, France, 2010.

[66] E. De Sena, H. Hacıhabiboğlu, and Z. Cvetković *Design of a circular microphone array for panoramic audio recording and reproduction: Array radius*, Presented at the AES 128^{th} Conv., Preprint #8064, London, UK, 2010.

[67] E. Giordano, E. De Sena, G. Pau, and M. Gerla "Vergilius: A scenario generator for VANET," in *2010 IEEE 71st Vehicular Technology Conference*, 2010, pp. 1–5.

[68] H. Hacıhabiboğlu, E. De Sena, and Z. Cvetković *Design of a circular microphone array for panoramic audio recording and reproduction: Microphone directivity*, presented at the 128th Audio Eng. Soc. Conv., Preprint #8063, London, UK, 2010.

[69] G. Marfia, G. Pau, E. Giordano, E. De Sena, and M. Gerla "VANET: On mobility scenarios and urban infrastructure. A case study," in *2007 Mobile Networking for Vehicular Environments*, 2007, pp. 31–36.

[70] G. Marfia, G. Pau, E. De Sena, E. Giordano, and M. Gerla "Evaluating vehicle network strategies for downtown Portland: Opportunistic infrastructure and the importance of realistic mobility models," in *Proc. of the 1st Int. MobiSys Workshop on Mobile Opportunistic Networking*, 2007, pp. 47–51.

Patents (granted)

[71] H. Hacıhabiboğlu, E. De Sena, and Z. Cvetković *Microphone array*, US Patent 8,976,977, 2015.

[72] E. De Sena, Z. Cvetković, and H. Hacıhabiboğlu *Electronic device with digital reverberator and method*, US Patent 8,908,875, 2014.

4. Total income/Research grants and/or scholarly funding received

As PI, named researcher, applicant or supervisor

2025/07-2025/11	Rendering Audio in Virtual Enclosed Spaces (RAVES)	PI	£60k	EPSRC IAA
2025/07-2027/06	AURORA³: Anechoic and Universal Research Observation Rooms for Audio, Acoustics & AI	PI	£2.9M (£2.3M ext.)	EPSRC
2024/08-2025/07	Institute of Advanced Studies Fellowship for Harry Yeff (Reeps One)	Applicant and Host	£5k	IAS Surrey
2024/03-2027/02	Challenges in Immersive Audio Technologies (CIAT)	PI of Surrey grant (KCL lead)	£1.08M (£861k ext.) (£3.9M total grant)	EPSRC
2023/09-2027/03	Sensory Perception of Active Acoustic Enhancement Systems (SPACES)	PI	Undisclosed	L-Acoustics, Surrey DC
2023/09-2027/03	Workflows and Production Guidelines for Immersive Music	Applicant and PhD Supervisor	£123k (£82k ext.)	TECHNE (AHRC)
2022/07-2025/07	Perceptually-motivated diffraction modelling	Applicant and PhD Supervisor	£68k	FASS Surrey
2022/09-2026/09	Data-driven Room Acoustic Modeling for AR (DRAMA)	PI	Undisclosed	Facebook Tech.
2022/08-2022/09	Vacation Research Internship	Applicant and Supervisor	£3.6k	FASS Surrey
2021/12-2022/08	Pump priming grant	Applicant	£2k	FASS Surrey
2022/08-2023/08	Institute of Advanced Studies Fellowship for Prof S. Schlecht	Applicant and Host	£5k	IAS Surrey
2021/08-2025/01	SCalable Room Acoustic Modeling (SCReAM)	PI	£509k (£407k ext.)	EPSRC
2016/05-2016/08	Outgoing Mobility Grant of the Flanders Research Council	PI	€6k	FWO
2015/02-2016/02	F+ Fellowship	Named researcher	€34k	KU Leuven
2013/05	ICASSP Travel Grant	Applicant	$0.5k	IEEE
2007/06	MobiSys Travel Grant	Applicant	$0.7k	ACM

As Co-Investigator

2023/09-2029/08	CoSTAR StoryFutures National Lab	Co-I	£40k IoSR (£8M Surrey; £51M total)	AHRC	RHUL, Abertay, Surrey, UK
2019/09-2023/07	Timbral characteristics of off-axis microphone response	PhD Co-Supervisor	£96k	Surrey VC Awards	University of Surrey, UK

As collaborator

2018/07 – 2023/08	The Spatial Dynamics of Room Acoustics (SONORA)	Named collab. (PI: T. van Waterschoot)	€2M	H2020	KU Leuven, Belgium
2016/02 – 2016/08	Environment-aware Listener-Optimized Binaural Enhancement of Speech	Collaborator (PI: M. Brookes)	£984k	EPSRC	Imperial College London, UK
2013/09 – 2015/01 & 2016/02 – 2016/09	Dereverberation and Reverberation of Audio, Music and Speech (DREAMS)	Marie Curie ITN Postdoctoral Fellow (PI: T. van Waterschoot)	€4.1M	Marie Curie Actions (FP7)	KU Leuven, Belgium
2009/09 – 2013/08	Perceptual Soundfield Reconstruction (PSR)	PhD student (funded) (PI: Z. Cvetković)	£390k	EPSRC	King's College London, UK

5. Supervision of PhD students

2025 –	Antoine Souchaud	Supervisor	University of Surrey, UK
2023 –	Will J. Cassidy	Supervisor	University of Surrey, UK
2023 –	Marcela Rada	Supervisor	University of Surrey, UK
2022 –	Amal Emthyas	Supervisor	University of Surrey, UK
2022 –	Joshua Mannall	Supervisor	University of Surrey, UK
2021 – 2025	Dr Matteo Scerbo	Supervisor	University of Surrey, UK
2020 – 2024	Dr Leslie Gaston-Bird (now AES President)	Co-supervisor	University of Surrey, UK
2017 – 2021	Dr Peter Dawson (now at Silixa Ltd)	Co-supervisor	Imperial College London, UK
2013 – 2019	Dr Giacomo Vairetti (now at ABT bv)	Day-to-day superv.	KU Leuven, Belgium
2013 – 2019	Dr Niccolò Antonello (now at Amazon R&D)	Day-to-day superv.	KU Leuven, Belgium

6. Teaching achievements

UG supervision: 41 tech projects supervised: 10 distinctions, 3 best dissertation prize, 3 published results in international conferences, and 1 as a journal paper.
PGT supervision: 7 tech projects supervised: 5 distinctions, and 1 best dissertation prize.
Admissions and pastoral care: 72 UCAS interviews conducted; personal tutor for 32 students; placement tutor for 24 students, including placements @ BBC, Ableton, Real World Studios, Digico, Martin Audio, ICP Studios.
Training: In 2018 obtained the Graduate Certificate in Learning and Teaching with first-class mark and a final research proposal on "Interactive Windows in First-year Signal Processing Modules".
Student feedback: MEQ anonymous average scores have been above FASS's average every year since I joined Surrey and rapidly increased every year until 2019/20 (91%), staying at an elevated level in 2020/21 (93%), 2021/22 (88%), 2022/23 (100%) and 2023/24 (88%).
Innovation: incorporated interactive windows in line with socio-constructivism theories, and updated exam format, in line with pedagogical findings related to mathematical anxiety (MEQs increased 10%; # of failures dropped significantly); participated in the WiseFlow trial; introduced flipped classroom and hybrid teaching; built 8-bit Turing-complete breadboard computer to illustrate computing concepts from first principles [video] [link]; redesigned Tonmeister UCAS math test; introduced SurreyLearn-based digital assessments; rolled out integrated audience response system (Poll Everywhere) across my modules; released Marking Toolbox [link].

7. Leadership & management experience

Leader of taught modules

2023 – present	Technical Project/Dissertation	45 credits	TON3014/TON3017	University of Surrey, UK
2019 – present	Audio Signal Proc. and Synth.	15 credits	TON2022	University of Surrey, UK
2018 – 2023	Audio Signal Analysis	15 credits	TON1023	University of Surrey, UK
2018 – 2023	Computer Systems	15 credits	TON1024	University of Surrey, UK
2016 – 2019	Sound Synthesis	7.5 credits	TON2020	University of Surrey, UK
2016 – 2018	Audio Signal Proc. A	7.5 credits	TON1019	University of Surrey, UK
2016 – 2018	Audio Signal Proc. B	7.5 credits	TON1020	University of Surrey, UK
2012 – 2013	Mult. Compr. Methods and Sys.	7.5 credits	7CCSMMUL	King's College London, UK

Other taught modules

2016 – present	Technical Project (TON3014)	Supervisor/(co)marker	University of Surrey, UK
2016 – present	Professional Training Year (TONP017)	Placement tutor	University of Surrey, UK
2018 – 2023	Computer Systems (FVP1013)	Lecturer	University of Surrey, UK
2012 – 2013	Digital Signal Processing (DSP)	Teaching Assistant	King's College London, UK

Administration

2023 – present	IoSR Director	University of Surrey, UK
2021 – present	PI of several research projects, including line management of 4 RFs (2 current) and 6 PhD students (6 current)	University of Surrey, UK
2016 – 2023	DMM Director of Internationalisation: developed Department's international strategy, introduced exchanges during PTY across the department	University of Surrey, UK
2012 – 2013	Coordinator of MSc Engineering final year projects	King's College London, UK

8. Membership of societies

IEEE Signal Processing Society (SPS)	Senior Member
IEEE Audio and Acoustic Signal Processing Technical Committee (AASP TC)	Voting Member
IEEE/ACM Transactions on Audio, Speech and Lang. Proc. (Q1; top journal in field)	Associate Editor
EURASIP Journal on Audio, Speech, and Music Processing (Q2)	Associate Editor
IEEE Open Journal of Signal Processing (Q1)	Guest Editor
European Association of Signal Processing (EURASIP)	Member
Audio Engineering Society (AES)	Member
Higher Education Academy (HEA)	Fellow
IEEE Transactions on Signal Processing	Technical reviewer
IEEE Signal Processing Letters	Technical reviewer
IEEE Signal Processing Magazine	Technical reviewer
Journal of Electrical and Computer Engineering (Hindawi)	Technical reviewer
Journal of Engineering Applications of Artificial Intelligence (Elsevier)	Technical reviewer
Journal of the Audio Engineering Society	Technical reviewer
Journal of the Acoustical Society of America	Technical reviewer

9. Invited tutorials at international conferences

1. UK and Ireland Speech conference (UKIS; around 180 attendees): invited keynote, "Speech auralisation," 15 Jun. 2023, Sheffield, UK.
2. ICASSP: tutorial "Acoustic Environment Synthesis for XR," (3.5 hours) with Z. Cvetković and H. Hacıhabiboğlu, 6 Jun. 2021, Toronto, Canada.
3. AES AVAR 2020: tutorial"Interactive Room Acoustics Synthesis for XR," (1.5 hours) with Z. Cvetković and H. Hacıhabiboğlu, 19 Aug. 2020, AltspaceVR.
4. EUSIPCO: tutorial"Dereverberation and Reverberation of Audio Music and Speech," (3.5 hours) with P. A. Naylor and T. van Waterschoot, 28 Aug. 2017, Kos, Greece.
5. ICASSP: tutorial "Auralization for Architectural Acoustics, Virtual Reality and Computer Games: from Physical to Perceptual Rendering of Dynamic Sound Scenes," (3.5 hours) with Z. Cvetković, and J. O. Smith III, 19 Apr. 2015, Brisbane, Australia.

10. Other evidence of standing

Awards

2025	Best Student Paper Award - AES Europe	M. Rada, R. Mason, E. De Sena "Immersive music production workflows: An ethnographic study of current practices"
2022	Best Paper Award - AES AVAR	J. Mannall, O. Das, P. Calamia, E. De Sena "Perceptual evaluation of low-complexity diffraction models from a single edge"
2021	Best Source Localization Paper Award - IEEE WASPAA	T. Dietzen, E. De Sena, T. van Waterschoot "Low-Complexity SRP Mapping Based on Nyquist-Shannon Sampling"
2013	Nominated for Best Student Paper Award - IEEE ICASSP	E. De Sena, Z. Cvetković "A Computational Model for the Estimation of Localisation Uncertainty" (top 6 of 348 submissions)

PhD examination

2024	Martin Jälmby	Awarded	External Examiner	KU Leuven, Belgium
2023	Jingshu Zhang	Awarded	Internal Examiner	University of Surrey, UK
2021	Craig Cieciura	Awarded	Internal Examiner	University of Surrey, UK
2021	Juan Engel Alonso-Martinez	Awarded	External Examiner	Imperial College London, UK
2020	Marco A. Martinez	Awarded	External Examiner	Queen Mary University, UK
2020	Benjamin R. Hammond	Awarded	Internal Examiner	University of Surrey, UK
2019	Cian O' Brien	Awarded	Internal Examiner	University of Surrey, UK

External examiner

2022-2026	M.Sc. Acoustics and Music Technology	University of Edinburgh, UK
2021-2024	M.Sc. Acoustics	University of Salford, UK

Conference activities

1. 50th Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP), Apr 2025, Hyderabad, India: area chair "Modeling, analysis, and synthesis of acoustics environments".
2. 27th International Conference on Digital Audio Effects (DAFx-24), Sep. 2024, Guildford, UK: general chair.
3. 49th Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP), Apr 2024, Seoul, South Korea: area chair "Modeling, analysis, and synthesis of acoustics environments".
4. 2023 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, 22-25 Oct. 2023, New Paltz, New York, U.S.A: area chair (meta-reviewer).
5. 48th Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP), Jun. 2023, Rhodes, Greece: co-chair of special session "Data Driven and Machine Learning based Room Acoustic Modeling".
6. 154th Audio Engineering Convention, May 2023, Helsinki, Finland: session chair "Audio for VR/AR."
7. 44th Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP), May 2019, Brighton, UK: co-chair of special session "Perceptually Motivated Signal Processing: Data, Algorithms and Evaluation."
8. 60th Int. Conf. of the Audio Engineering Society, Feb. 2016, Leuven, Belgium: co-chair of Demonstrations.

Invited presentations and lectures

1. KU Leuven, guest lecture, "Auralization for XR," 13 Mar. 2025, Leuven, Belgium.
2. Oldenburg University, invited seminar, "Towards auditory immersion in VR/AR/gaming: acoustic modelling of complex room geometries," 28 Jan. 2025, Oldenburg, Germany.
3. Fraunhofer IDMT (Universität Erlangen-Nürnberg), invited seminar, "Towards auditory immersion in VR/AR/gaming: acoustic modelling of complex room geometries," 30 Jan. 2025, Erlangen, Germany.
4. Salford University, invited seminar, "Low-complexity Room Acoustic Modelling," 22 Nov. 2023, Glasgow, UK.
5. SONICOM Research Sandpit, invited presentation, "Real-time room acoustic rendering for AR/MR/VR," 20 Nov. 2023, Glasgow, UK.
6. AES Europe, invited workshop, "Efficient Virtual Acoustics for AR/VR," with N. Meyer-Kahlen, (Aalto), C. Schissler (Meta) K. Prawda (Aalto), 14 May 2023, Helsinki, Finland.
7. University of Edinburgh, invited seminar, "Perception-based immersive sound," 28 Mar. 2023, Edinburgh, UK.
8. KU Leuven, invited lecture, "Sound Field Recording and Reproduction: A Brief Overview," 25 Nov. 2022, Leuven, Belgium.
9. Schoeps Mikrofone, invited talk, "Revisiting Time-Amplitude Stereophony," 19 Oct. 2021, Karlsruhe, Germany.
10. University of Campinas (Brazil), invited seminar, "Perception-based Soundfield Synthesis," 9 Jun. 2021, Zoom.
11. Surrey FASS Research Festival 2021, invited talk, "The Covid Listening Project," 19 Jan. 2021, Zoom.
12. UK Acoustics Network, invited talk, "Perception-Based Methods for Spatial Audio," 28 Oct. 2020, Zoom.
13. Surrey FASS Research Festival 2020, invited talk, "Engaging with Digital Realities: Immersive Audio," 23 Jan. 2020, Guildford, UK.
14. Stereopsia, invited talk, "Perception-based immersive sound: how to fool the auditory system," 13 Dec. 2019, Brussels, Belgium.
15. KU Leuven, invited lecture, "Sound Field Recording and Reproduction: A Brief Overview," 2 Dec. 2015 and 2 Dec. 2016, 30 Nov. 2018, 4 Nov. 2019, Leuven, Belgium.
16. Politecnico di Milano, invited talk,"Perceptual Spatial Audio Simulation, Recording and Reproduction," 31 Oct. 2019, Milan, Italy.
17. Sonos R&D, invited talk, "Perceptual Spatial Audio Simulation and Reproduction," 19 Aug. 2019, Santa Barbara, California.
18. Apple R&D, invited talk, "Perceptual Spatial Audio Recording, Simulation, and Rendering," 13 Aug. 2019, Los Angeles, California.
19. Sony R&D, invited talk, "Low-Complexity Room Acoustics Modelling and Simulation," 22 Jan. 2018, Tokyo, Japan.
20. University of Electro-Communications, invited talk "Efficient modelling of room acoustics: parametric and percep-

tual methods," 23 Jan. 2018, Tokyo, Japan.
21. Politecnico di Torino, invited talk, "Perceptual Spatial Audio Simulation, Recording and Reproduction," 6 Nov. 2017, Turin, Italy.
22. SoundMiT, roundtable, "Teaching and learning in sound and entertainment engineering: present and future outline," 5 Nov. 2017, Turin, Italy.
23. Southampton University, ISVR, invited talk, "Room acoustics simulation: perceptual approximation of physical models," 31 Jan. 2017, Southampton, UK.
24. Università degli Studi di Napoli Federico II, invited talk, "Perception-Based Surround Sound Recording and Reproduction," 22 Feb. 2016, Naples, Italy.
25. Imperial College London, invited talk, "Perception Based Methods for Spatial Audio," 11 Sept. 2015, London, UK.
26. Bang & Olufsen R&D, invited presentation, "On the Modeling of Rectangular Geometries in Room Acoustic Simulations," 23 Jan. 2015, Struer, Denmark.
27. Aarhus University, Danish Neuroscience Centre, invited seminar in the "Music in the brain" seminar series, "Sound Localisation: from Binaural Modelling to Multichannel Recording and Reproduction," 6 Nov. 2014, Aarhus, Denmark.
28. Stanford University, CCRMA, guest lecture, "Interactive Auralization for Virtual and Augmented Reality," 26 Sep. 2013, Stanford, USA.
29. BBC R&D, invited presentation with Z. Cvetković, "Perceptual Sound Field Reconstruction and Coherent Emulation," 22 Nov. 2011, London, UK.

Public outreach activities

Parts of my research have been used at a number of public events, performances and workshops, with varying degrees of support from me or my colleagues, including:

1. DAFx24 and Surrey, "Phantom Voices," performance by award-winnning voice artist Reeps One, 4 Sep. 2024, Guildford, UK. [link]
2. International Broadcasting Convention (IBC) "6DOF Audio-Led Narrative and Music Experiences in the Metaverse" accelerator 13-16 Sep. 2023, Amsterdam, The Netherlands. [link]
3. International Broadcasting Convention (IBC) "5G and The Arena of The Future for XR Evenets" accelerator, where I served as their champion, 9-12 Sep. 2022, Amsterdam, The Netherlands. [link]
4. International Broadcasting Convention (IBC) "Immersive Audio and Sound Imagery" accelerator, where I served as their champion, 3-6 Dec. 2021, Online. [link]
5. National Gallery exhibition "Sensing the Unseen, Step into Gossaert's Adoration": the exhibition (Room 1 in the Main Entrance Hall), featured a number of acoustic pods with directional loudspeakers, used in conjunction with a surround sound system incorporating our immersive audio technology and software, 9 Dec. 2020 – 13 Jun. 2021, London, UK. [link][link]
6. 12 Hours "A marathon for voice and Electronics" by composer Catherine Kontz exploring endurance as a concept in music and tests the extremities of human vocal ability. The performance used SDN/PSR and has since been turned into a binaural experience to accompany the video of the performance on 14 Feb. 2020 at Somerset House, London. [link].
7. WOMAD-at-home: a series of virtual concerts organised by Real World Studios, Oct. 2020. One of the acts, Blue Lab, stated "Outstanding plugin to make it even more of a live feel. [..] That was amazing to use, so that it feels like you are in the room with us when we are playing the live musing. [...]". [link] [link]
8. National Gallery X (NGX, the new experimental space of the National Gallery): with Z. Cvetkovic and A. Hossaini [link], I helped design the surround sound auralisation system. The opening event of NGX saw the participation of Sir Tim Berners-Lee, the inventor of the world wide web, and Gabriele Finaldi, the National Gallery's director, Sep. 2019, London, UK. [link]
9. Immersive sound installations by Gestalt [link]: (a) "Cause & Effect" an interactive installation piece presented at the PRS stage for 'Your Stratford Stage' at Endeavour Square, Stratford on the 17th May 2019, London, UK. [link] (b) "Ghost in the Machine" performance at Underdog Gallery for London Architecture festival with Musicity Global, May 2019, London, UK. [link]
10. Transformations: a play theatre group New Public, with music composed by Keir Vine, shown as a part of RADA

Festival, Jul. 2019, London, UK. [link]

11. The Philosophy Shop: a play by Ali Hossaini and composer Catherine Kontz, shown at RADA in Mar. 2019, London, UK. [link]
12. Pigment Channel: collaboration with Patrick Morgan [link], [link], Escape Studios [link], V&A Museum, Dec. 2018, London, UK. [link] [link]
13. Connected Culture: organised by King's College London, with Z. Cvetković, M. Dohler, A. Hossaini, Battersea Arts Centre, Young Vic, RoomOne, Vodafone, Ericsson, Jul. 2018, London, UK. [link] [link] [link]
14. Circular Breathing: collaboration with Reeps One, Get Involved, Ninja Tune, Somerset House, was presented at Somerset House in Sep. 2018, London, UK. [link] [link]
15. Ouroboros: a 3D piece by A. Hossaini, a "3-D visual collage of vibrating mandalas, exploding galaxies, astronauts and corporate logos", presented at (a) Click Festival 2017, 20-21 May 2017, Copenhagen, Denmark. [link]; (b) Guildhall Art Gallery, Jun.-Jul. 2018, London, UK; (c) Bell Labs, part of Christie's NYC Master Class on Digital Art, May 2019, NYC, USA.
16. Networked Performance: organised by King's College London, with RADA, Z. Cvetković, M. Dohler, A. Hossaini, Jan. 2017. [link]
17. The Piano: organised by King's College London in partnership with superstar pianist, Yuja Wang, 59 Productions and Fidelio Arts, Sep. 2016, London UK. [link]
18. Royal Society Summer Science Exhibition (≈15k visitors): designed and presented part of the "Interaction with Sound in a 3D World" exhibit, Jun.-Jul. 2015, London, UK. [link]

Open source resources

1. MCL: A C++ Library implementing various Matlab functions. [link]
2. Spatial Audio Library (SAL): A C++ Library for spatial audio. [link]
3. Audio Circular Statistics (ACS): Matlab library for statistical analysis of directional data. [link]
4. Randomized Image Method (RIM): Matlab implementation of the Image Method and Randomized Image Method. [link]
5. Scattering Delay Network (SDN): Matlab implementation of the room acoustic model. [link]
6. Perceptual Soundfield Reconstruction (PSR): Python module to generate PSR directivity patterns and its higher-order approximations. [link]
7. SUBRIR: The Subwoofer Room Impulse Response Database (SUBRIR) [link]

In the media (last 5 years)

1. "DNA kinship sonification," 2 April 2022, Quinta Dimensione (Italian prime-time science TV programme on natioanl channel Rai 3; ≈1M live viewers) [link].
2. "Using Music to fight COVID-19," 13 Nov 2020, Metro London (≈1.3M circulation).
3. "Come cambia il virus? Barbara Gallavotti ce lo spiega con la musica," 19 May 2020, diMartedì (Italian prime-time TV programme on national channel La7; ≈3M live viewers) [link].
4. "Understanding coronavirus through musical transformations," 6 May 2020, Medical XPress.
5. "National Gallery paints vision of technology in art," 20 Sep. 2019, Financial Times (≈1M circulation) [link].