César D. Salvador, Ph.D.

Acoustic Information Sciences

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Date of birth: 9 March 1978. Nationality: Peruvian.

Resume

Experienced researcher in acoustics and lifelong learner of science. My interests include the perception of space through the sense of hearing integrated with other modalities such as vision and touch. I received my M.Sc. and Ph.D. degrees in 2013 and 2016, respectively, from the Graduate School of Information Sciences (GSIS), Tohoku University, Japan. From April 2017 to March 2019, I worked as an Assistant Professor at the Research Institute of Electrical Communication (RIEC), Tohoku University, where I also was the principal investigator of a project funded by the Japan Society for the Promotion of Science (JSPS). From August 2019 to January 2021, I worked as Chief Audio Scientist for Silicon Integrated Co. Ltd., China. In August 2019, I founded Perception Research in Peru, to foster education and research on spatial acoustics in the context of multisensory perception, artificial intelligence, and immersive technology. In 2022, my project Memoria Inmersiva got funding from the Ministry of Culture of Peru to continue preserving the immersive soundscapes of historical spaces of Peru. I am also a lecturer in physics (NCUK Program), signals and systems, and digital signal processing (Electrical Engineering Program) at the Peruvian University of Applied Sciences.

Education

- 2016 Ph.D., Information Sciences, Tohoku University, Sendai, Japan
 - Doctoral Dissertation: Binaural Synthesis Based on Spherical Acoustics
 - Tohoku University Repository: http://hdl.handle.net/10097/00121125
- 2013 M.Sc., Information Sciences, Tohoku University, Sendai, Japan
 - Master Thesis: Binaural Synthesis Based on the Spherical Harmonic Analysis with Compact Microphone Arrays
 - Tohoku University Repository: http://hdl.handle.net/10097/56638
- Training, Indian Institute of Remote Sensing, Dehradun, India
- B.Sc., Electrical Engineering (Bachiller en Ciencias e Ingeniería, Especialidad Ingeniería Electrónica), Pontifical Catholic University of Peru, Lima,

Professional Experience

2023-Present Full-Time Professor, Peruvian University of Applied Sciences (UPC), Lima, Peru

- Lecturer in Physics (UK39) in the NCUK Program of International Degrees.
- o Lecturer in Signals and Systems (EL231) and Digital Signal Processing (EL222) in the Electrical Engineering Program of the Engineering School.

- 2022–2023 Part-time Lecturer, Peruvian University of Applied Sciences (UPC), Lima, Peru
 - Lecturer in Physics (UK39) in the NCUK Program of International Degrees.
 - Lecturer in Digital Signal Processing (EL222) in the Electrical Engineering Program of the Engineering School.
- 2019–Present Founder, Perception Research, Lima, Peru
 - My team conducts research on acoustics in the context of multisensory perception, artificial intelligence, and immersive technologies. We design acoustic comfort solutions for real and virtual spaces. We also foster the growth of the acoustic research community in Peru.
 - 2019–2021 Chief Audio Scientist, Silicon Integrated Co., Ltd., Wuhan, Hubei, China
 - The audio algorithm development team of Silicon Integrated (SI) in China and Peru creates smart 3D audio solutions for mobile platforms considering immersive user experiences through multisensory interfaces.
 - 2017–2019 Assistant Professor (Specially Appointed for Research), Advanced Acoustic Information Systems Laboratory, RIEC, Tohoku University
 - Principal Investigator of the project "Perceptual Constancy in Spatial Hearing," supported by a Grant-in-Aid of the Japan Society for the Promotion of Science (JSPS), under Grant JP17K12708 (2017–2018).
 - Report available at: https://kaken.nii.ac.jp/grant/KAKENHI-PROJECT-17K12708.
 - 2016–2017 **Postdoctoral Researcher**, Advanced Acoustic Information Systems Laboratory, RIEC, Tohoku University
 - Physically-motivated spatial audio recording, edition, and binaural reproduction.
 - 2008–2010 "Docente Investigador", equivalent to Assistant Professor (Research), Faculty of Communication Sciences, University of San Martin de Porres, Lima, Peru
 - Principal Investigator of the project "Auralization: Towards the authentic representation of sound in space." In this project, spatial sound technologies where applied to the recording, preservation, and reproduction of urban and rural soundscapes of Lima. The results were exhibited annually in the sound art festival "Lima Sonora", and published in four international proceedings.
 - 2006–2007 **Academic Coordinator**, National Institute for Research and Training in Telecommunications (INICTEL), Lima, Peru
 - Planning and coordination of workshops in robotics. The workshops were oriented to students of the Army Technical School of Peru and were lectured by INICTEL's academic staff.
 - 2006–2010 **Teaching Assistant**, Department of Sciences and Engineering, Pontifical Catholic University of Peru, Lima, Peru
 - Courses: Communication theory (IEE253, TEL208), Digital signal processing (IEE210, IEE352, TEL233), Microwaves (TEL236), Antenna engineering (TEL345), Computer architecture (IEE208), and Calculus (MAT119).

Funding

- 2022–2023 Grant for New Audiovisual Media Projects, Ministry of Culture of Peru, to continue preserving the soundscapes of historical spaces of Peru through our project "Immersive Memory" with the team of Perception Research, Acta 189-2022-DAFO. https://www.perception3d.com/soundscape https://estimuloseconomicos.cultura.gob.pe/sites/default/files/concursos/archivos/2022
 - https://estimuloseconomicos.cultura.gob.pe/sites/default/files/concursos/archivos/2022-CNM-FalloFinal.pdf
- 2017–2018 Grant-in-Aid for Young Scientists (B), Japan Society for the Promotion of Science (JSPS), for the project "Perceptual Constancy in Spatial Hearing", JSPS Grant JP17K12708
 - Report available at: https://kaken.nii.ac.jp/grant/KAKENHI-PROJECT-17K12708

- 2018 **Travel Grant**, European Project Center (EPC), and Institute of Acoustics and Speech Communications (IAS), TU Dresden, to enable participation in the workshop on the MSC Individual Fellowships Program, with the project "High-definition Acoustic Reconstruction for Multisensory Environments", Dresden, Germany, June 2018
- 2016 **Travel Grant**, Murata Science Foundation, to present the paper "Numerical evaluation of binaural synthesis from rigid spherical microphone array recordings" at the Audio Engineering Society International Conference on Headphone Technology, held in Aalborg, Denmark, from Aug. 24th to Aug. 26th, 2016

Awards and Scholarships

- 2016 **Best Paper Award**, 11th International Conference on Intelligent Information Hiding and Multimedia Signal Processing, for co-authoring the paper entitled "A compact representation of the head-related transfer function inspired by the wavelet transform on the sphere"
- 2011–2016 Scholarship, Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT or Monbukagakusho), to pursue studies in Graduate School of Information Sciences (GSIS), Tohoku University, Sendai, Japan
 - 2008 **Scholarship**, *Indian Technical and Economic Cooperation (ITEC)*, to attend a two-months training course on Remote Sensing and Geographical Information Systems at the Indian Institute of Remote Sensing (IIRS), Dehradun, India
 - 2007 **Honorable Mention**, *UNESCO* and *Daimler Mondialogo Engineering Award*, for co-authoring a project focused on improving the diagnosis and treatment of tuberculosis and cutaneous Leishmaniasis in Peru using medical imaging techniques, in collaboration with University of Rochester and Pontifical Catholic University of Peru

Patents

 Y. Suzuki, S. Sakamoto, J. Treviño, <u>C. D. Salvador</u>, and T. Kudo, "Method, program, and device for stereophonic sound reproduction," *J-PlatPat*, Japanese Patent Number JP.6556682.B., August 2019.
 Available at J-PlatPat

Journal Articles

- 9. A Urviola, S. Sakamoto, and <u>C. D. Salvador</u>, "Ear centering for accurate synthesis of near-field head-related transfer functions," *Appl. Sci.*, vol. 12, no. 16, 2022. Available at https://www.mdpi.com/2076-3417/12/16/8290
- 8. J. Shi, <u>C. D. Salvador</u>, J. Treviño, S. Sakamoto, and Y. Suzuki, "Spherical harmonic representation of rectangular domain sound fields," *Acoust. Sci. Technol.*, vol. 41, no. 1, pp. 451–453, Jan. 2020.

 Available at https://doi.org/10.1250/ast.41.451
- 7. S. Hu, J. Treviño, <u>C. D. Salvador</u>, S. Sakamoto, and Y. Suzuki, "Modeling head-related transfer functions with spherical wavelets," *Appl. Acoust.*, vol. 146, pp. 81–88, Mar. 2019.
 - Available at https://doi.org/10.1016/j.apacoust.2018.10.026
- C. D. Salvador, S. Sakamoto, J. Treviño, and Y. Suzuki, "Boundary matching filters for spherical microphone and loudspeaker arrays," *IEEE/ACM Trans. Audio, Speech, Language Process.*, vol. 26, no. 3, 461–474, March 2018.
 Available at https://doi.org/10.1109/TASLP.2017.2778562
- 5. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Enhancement of spatial sound recordings by adding virtual microphones to spherical microphone arrays," *J.*

- Inf. Hiding and Multimedia. Signal Process., vol. 8, no. 6, pp. 1392–1404, Nov. 2017. Available at http://bit.kuas.edu.tw/~jihmsp/2017/vol8/JIH-MSP-2017-06-020.pdf
- C. D. Salvador, S. Sakamoto, J. Treviño, and Y. Suzuki, "Design theory for binaural synthesis: Combining microphone array recordings and head-related transfer function datasets," Acoust. Sci. Technol., vol. 38, no. 2, pp. 51–62, Mar. 2017.
 Available at https://doi.org/10.1250/ast.38.51
- 3. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Spatial accuracy of binaural synthesis from rigid spherical microphone array recordings," *Acoust. Sci. Technol.*, vol. 38, no. 1, pp. 23–30, Jan. 2017.

 Available at https://doi.org/10.1250/ast.38.23
- C. D. Salvador, S. Sakamoto, J. Treviño, and Y. Suzuki, "Distance-varying filters to synthesize head-related transfer functions in the horizontal plane from circular boundary values," Acoust. Sci. Technol., vol. 38, no. 1, pp. 1–13, Jan. 2017. Available at https://doi.org/10.1250/ast.38.1
- S. Hu, J. Treviño, <u>C. D. Salvador</u>, S. Sakamoto, J. Li, and Y. Suzuki, "A local representation of the head-related transfer function," *J. Acoust. Soc. Am.*, vol. 140, no. 3, pp. EL285–EL290, Sept. 2016.
 Available at https://doi.org/10.1121/1.4962805

Conference Papers

- 36. <u>C. D. Salvador</u>, A. Urviola and S. Sakamoto, "Ear centering in the spatial and transform domains for near-field head-related transfer functions," *Proc. 24th Int. Cong. Acoust. (ICA 2022)*, Gyeongju, South Korea, October 2022.

 Available at https://cesardsalvador.github.io/doc/Salvador2022EarCenteringExtended.pdf
- 35. A. Campos, S. Sakamoto, and <u>C. D. Salvador</u>, "Directional early-to-late energy ratios to quantify intelligibility: A case study in a large auditorium," *Proc. Int. Conf. Immersive and 3D Audio (I3DA)*, Bologna, Italy, September 2021. Available at https://doi.org/10.1109/I3DA48870.2021.9610935
- 34. A. Urviola, S. Sakamoto, and <u>C. D. Salvador</u>, "Ear centering for near-distance head-related transfer functions," *Proc. Int. Conf. Immersive and 3D Audio (I3DA)*, Bologna, Italy, September 2021.

 Available at https://doi.org/10.1109/I3DA48870.2021.9610891
- 33. J. Alarcón, J. Solis, and <u>C. D. Salvador</u>, "Regularized spherical Fourier transform for room impulse response interpolation," *Proc. IEEE XXVII Int. Conf. Electronics*, *Electrical Engineering, and Computing (INTERCON)*, Lima, Peru, August 2021. Available at https://doi.org/10.1109/INTERCON52678.2021.9532805
- 32. C. Peng, Y. Shi, B. Yan, L. Wu, Z. Chen, <u>C. D. Salvador</u> and D. Liu, "Power-based thermal limits for micro-speaker protection algorithms," in *148th Audio Eng. Soc. Convention*, Vienna, Austria, June 2020.

 Available at http://www.aes.org/e-lib/browse.cfm?elib=20832.
- 31. S. Sakamoto, F. Monasterolo, <u>C. D. Salvador</u>, Z. Cui, and Y. Suzuki, "Effects of target speech distance on auditory spatial attention in noisy environments," in *Proc. ICA* 2019 and EAA Euroregio, pp. 2177–2181, Aachen, Germany, Sept. 2019. Available at http://pub.dega-akustik.de/ICA2019/data/articles/001087.pdf.
- 30. S. Sakamoto, <u>C. D. Salvador</u>, J. Treviño, and Y. Suzuki, "Binaural synthesis using a spherical microphone array based on the solution to an inverse problem," in *Proc. Inter-Noise*, pp. 735–738, Madrid, Spain, June 2019.

- 29. F. Monasterolo, S. Sakamoto, <u>C. D. Salvador</u>, Z. Cui, and Y. Suzuki, "The effect of target speech distance on spatial auditory attention under multi-talker environment," in *Proc. Spring Meeting Acoust. Soc. Jpn.*, pp. 735–738, Tokyo, Japan, March 2019.
- 28. <u>C. D. Salvador</u>, R. Teraoka, Y.-W. Liu, M. Sato, A. Kral, and S. Sakamoto, "Computational models of the auditory brain," in *6th Int. Symp. Brainware LSI*, Sendai, Japan, March 2019.
- 27. F. Monasterolo, S. Sakamoto, <u>C. D. Salvador</u>, Z. Cui, and Y. Suzuki, "The effect of target speech distance on reaction time under multi-talker environment," in *IEICE Tech. Rep.*, vol. 118, no. 313, pp. 83–88, Nov. 2018.
- 26. J. Shi, <u>C. D. Salvador</u>, J. Treviño, S. Sakamoto, and Y. Suzuki, "Spherical harmonic representation of rectangular domain sound fields," in *Int. Symp. Universal Acoustical Communication*, Sendai, Japan, Oct. 2018.
- 25. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Enhancing binaural reconstruction from rigid circular microphone array recordings by using virtual microphones," in *Proc. Audio Eng. Soc. Int. Conf. Audio for Virtual and Augmented Reality*, Redmond, WA, USA, Aug. 2018. Available at http://www.aes.org/e-lib/browse.cfm?elib=19669
- 24. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Dataset of near-distance head-related transfer functions calculated using the boundary element method," in *Proc. Audio Eng. Soc. Int. Conf. Spatial Reproduction —Aesthetics and Science*—, Tokyo, Japan, Aug. 2018.

 Available at http://www.aes.org/e-lib/browse.cfm?elib=19602

 Dataset available at http://www.ais.riec.tohoku.ac.jp/ salvador/download.html
- 23. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Enhancing the binaural synthesis from spherical microphone array recordings by using virtual microphones," in *IEICE Tech. Rep.*, vol. 117, no. 328, pp. 61–66, Auckland, New Zealand, Nov. 2017.
- 22. H. Sato, W. Arif, S. Sakamoto, <u>C. D. Salvador</u>, J. Treviño, Y. Suzuki, and A. Ito, "A compression method for spherical microphone array recordings using principal component analysis," in *Proc. RISP Int. Workshop on Nonlinear Circuits, Comm. and Signal Process.*, Guam, USA, March 2017.
- 21. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Validity of distance-varying filters for individual HRTFs on the horizontal plane," in *Proc. Spring Meeting Acoust. Soc. Jpn.*, Kawasaki, Japan, March 2017.
- 20. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "A model for spatial sound systems comprising sound field recording, spatial editing, and binaural reproduction," in *IEICE Tech. Rep.*, vol. 116, no. 449, pp. 61–65, Jan. 2017.
- 19. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Sound field interpolation in the spatial domain with a rigid spherical microphone array," presented at *5th Joint Meeting of the Acoustical Society of America and Acoustical Society of Japan*, Dec. 2016.
- 18. J. Treviño, <u>C. D. Salvador</u>, V. Braciulis, S. Sakamoto, Y. Suzuki, K. Yoshikawa, T. Yamasaki, and K. Kidokoro, "Sound source separation in complex environments using an array-of-arrays microphone system," in *Proc. 22nd Int. Cong. Acoust.*, Buenos Aires, Sept. 2016.
 - Available at http://www.ica2016.org.ar/ica2016proceedings/ica2016/ICA2016-0415.pdf

- 17. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Evaluation of white noise gain in a binaural system for microphone arrays," in *Proc. Autumn Meeting Acoust. Soc. Jpn.*, Toyama, Japan, pp. 401–404, Oct. 2016.
- 16. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Numerical evaluation of binaural synthesis from rigid spherical microphone array recordings," in *Proc. Audio Eng. Soc. Int. Conf. Headphone Technology*, Aalborg, Denmark, Aug. 2016. Available at https://doi.org/10.17743/aesconf.2016.978-1-942220-09-1
- H. Sato, W. Arif, S. Sakamoto, <u>C. D. Salvador</u>, J. Treviño, and Y. Suzuki, "Compression of spherical microphone array recordings using eigenvalue decomposition," in *Proc.* RISP Int. Workshop on Nonlinear Circuits, Comm. and Signal Process., Guam, USA, March 2016.
- 14. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "A new signal processing procedure for stable distance manipulation of circular HRTFs on the horizontal plane," in *Proc. Spring Meeting Acoust. Soc. Jpn.*, Yokohama, Japan, pp. 561–564, March 2016.
- 13. J. Treviño, S. Hu, <u>C. D. Salvador</u>, S. Sakamoto, J. Li, and Y. Suzuki, "A compact representation of the head-related transfer function inspired by the wavelet transform on the sphere," in *Proc. Int. Conf. Intell. Inf. Hiding and Multimedia Signal Process.* (IIH-MSP), Sept. 2015, pp. 372–375.

 Available at https://doi.org/10.1109/IIH-MSP.2015.108
- S. Sakamoto, A. Wicaksono, J. Treviño, <u>C. D. Salvador</u>, and Y. Suzuki, "Prediction method for compression of spherical microphone array signals using geometric information," in *Proc. Int. Conf. Intell. Inf. Hiding and Multimedia Signal Process.* (IIH-MSP), Sept. 2015, pp. 376–379.
 Available at https://doi.org/10.1109/IIH-MSP.2015.91
- 11. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Embedding distance information in binaural renderings of far field recordings," in *Proc. EAA Joint Symposium on Auralization and Ambisonics*, Berlin, Germany, April 2014, pp. 133–139. Available at https://doi.org/10.14279/depositonce-22
- 10. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "Editing distance information in compact microphone array recordings for its binaural rendering," in *IEICE Tech. Rep.*, vol. 114, no. 3, pp. 13–18, Apr. 2014.
- C. D. Salvador, S. Sakamoto, J. Treviño, J. Li, Y. Yan, and Y. Suzuki, "Accuracy of head-related transfer functions synthesized with spherical microphone arrays," *Proc. Mtgs. Acoust.*, vol. 19, no. 1, Apr. 2013.
 Available at https://doi.org/10.1121/1.4800833
- 8. <u>C. D. Salvador</u>, S. Sakamoto, J. Treviño, and Y. Suzuki, "A method to synthesize head-related transfer functions based on the spherical harmonic decomposition," in *Proc. Spring Meeting Acoust. Soc. Jpn.*, Tokyo, Japan, pp. 889–892, March 2013.
- 7. J. Treviño, T. Okamoto, <u>C. D. Salvador</u>, Y. Iwaya, Z. Cui, S. Sakamoto, and Y. Suzuki, "High-order ambisonics auditory displays for the scalable presentation of immersive 3D audio-visual contents," in *Proc. 23rd Int. Conf. Artificial Reality and Telexistence*, Tokyo, Japan, 2013.
- 6. <u>C. D. Salvador</u>, "Discrete driving functions for horizontal reproduction using wave field synthesis and higher order ambisonics," in *Proc. Audio Eng. Soc. 129 Convention*, San Francisco, USA, Nov. 2010.

 Available at http://www.aes.org/e-lib/browse.cfm?elib=15666

- 5. <u>C. D. Salvador</u>, "Wave field synthesis using fractional order systems and fractional delays," in *Proc. 128th Audio Eng. Soc. Convention*, London, UK, May 2010. Available at http://www.aes.org/e-lib/browse.cfm?elib=15419
- 4. <u>C. D. Salvador</u>, "A virtual acoustic environment as auditory display front-end for sonification," in *Proc. Interactive Sonification Workshop on Human Interaction with Auditory Displays*, Stockholm, Sweeden, April 2010, pp. 69–72. Available at https://pub.uni-bielefeld.de/publication/2277223
- 3. <u>C. D. Salvador</u>, "A discretization of the wave field synthesis method for auralization of natural sounds," in *Proc. Int. Multi-Conference on Complexity, Informatics and Cybernetics*, Orlando, FL, USA, April 2010.

Available at

http://www.iiis.org/CDs2010/CD2010IMC/IMCIC_2010/index.asp?id=0&area=5

- 2. <u>C. D. Salvador</u>, "A channel vocoder using wavelet packets on a reconfigurable device," in *Proc. 124th Audio Eng. Soc. Convention*, Amsterdam, The Netherlands, May 2008. Available at http://www.aes.org/e-lib/browse.cfm?elib=14546
- 1. <u>C. D. Salvador</u>, "Operadores integrales y sus aplicaciones al procesamiento digital de señales," in *Proc. XXIV Coloquio de la Sociedad Matemática Peruana*, Ica, Peru, June 2006.

Available at

cesardsalvador.github.io/doc/Salvador2006OperadoresIntegralesAplicacionDSP.pdf

Professional Affiliations

Member Institute of Electrical and Electronics Engineers (IEEE)

Member IEEE Signal Processing Society

Member IEEE Brain Community

 ${\bf Member} \quad {\bf Audio} \ {\bf Engineering} \ {\bf Society} \ ({\bf AES})$

Member Acoustical Society of Japan (ASJ)

Member American Mathematical Society (AMS)

Academic Service

Reviewer IEEE/ACM Transactions on Audio, Speech, and Language Processing

Reviewer IEEE Access

Reviewer The Journal of the Acoustical Society of America

Reviewer MDPI Aerospace

Reviewer MDPI Mathematics

Reviewer Applied Acoustics

Reviewer Acoustics Australia

Reviewer Acoustical Science and Technology

Reviewer Journal of Information Hiding and Multimedia Signal Processing

Reviewer 2019 AES Conference on Headphone Technology

Reviewer 2020 AES Conference on Audio for Virtual and Augmented Reality

Reviewer 2021, 2022 IEEE INTERCON

Reviewer 2021 IEEE EIRCON

Administration

- 2019 **Organizer**, Spatial Acoustics and Hearing Research Week (in Spanish), held at Universidad de San Martín de Porres and Centro Fundación Telefónica, from January 28 to February 3, 2019
 - Report available at: https://cesardsalvador.github.io/a3d/
- 2018 Organizer, Exchange Meetings on Spatial Sound, Speech, and Haptic Signal Processing between the Technische Universität Dresden (TU Dresden) and Tohoku University, held at the Institute of Acoustics and Speech Communication, TU Dresden, Germany, from January 30 to February 2, 2018
- 2018 **Organizer**, Exchange Meeting on Spatial Sound and Speech Signal Processing between the Carl von Ossietzky University of Oldenburg and Tohoku University, held at the Research Group on Auditory Signal Processing for Hearing Devices of the Carl von Ossietzky University of Oldenburg, Germany, on January 29, 2018
- 2017, 2018 **Collaborator**, Open Campus of Tohoku University, and Open Campus of RIEC, in charge of the exhibitions of the Acoustic Information Systems Laboratory, held in July and October

Languages

- Spanish · Mother tongue
- English · Fluent
- o Japanese · Advanced
- French · Advanced

References

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Reference 2 Prof. Shuichi Sakamoto

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