

# Prof. HÜSEYİN HACİHABİBOĞLU

## Personal Information

**Office Phone:** [+90 312 210 7889](tel:+903122107889)

**Email:** [hhuseyin@metu.edu.tr](mailto:hhuseyin@metu.edu.tr)

**Web:** <http://www.hacihabiboglu.org>

**Address:** ODTÜ Enformatik Enstitüsü

## International Researcher IDs

ScholarID: 12pBCBYAAAAJ

ORCID: 0000-0002-5399-0162

Publons / Web Of Science ResearcherID: P-8638-2014

ScopusID: 14022794500

Yoksis Researcher ID: 101327

## Education Information

Doctorate, The Queen's University Of Belfast, School Of Computer Science, United Kingdom 2001 - 2004

Postgraduate, University of Bristol, Department Of Electrical And Electronic Engineering, United Kingdom 2000 - 2001

Undergraduate, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, Turkey 1996 - 2000

## Foreign Languages

English, C2 Mastery

## Dissertations

Doctorate, Perceptual Room Auralization for Virtual Auditory Displays, The Queen's University Of Belfast, School Of Computer Science, 2004

Postgraduate, INSTRUMENT BASED WAVELET PACKET TREES IN AUDIO ANALYSIS, University Of Bristol, Department Of Electrical And Electronic Engineering, 2001

## Research Areas

Information Systems, Communication and Control Engineering, Signal Processing, Signal Processing for Sensor Sequences, Multimedia, Speech Analysis and Processing Techniques, Signal Processing Theory and Methods, Engineering and Technology

## Academic Titles / Tasks

Professor, Middle East Technical University, Graduate School of Informatics, Modeling and Simulation, 2022 - Continues  
Associate Professor, Middle East Technical University, Graduate School of Informatics, Modeling and Simulation, 2017 - 2022

Assistant Professor, Middle East Technical University, Graduate School of Informatics, Modeling and Simulation, 2012 - 2017

Lecturer PhD, Middle East Technical University, Graduate School of Informatics, Modeling and Simulation, 2011 - 2017

Lecturer PhD, University of London-Kings College London, Division Of Engineering, Department Of Electronic Engineering, 2008 - 2010

Lecturer PhD, University of Surrey, Faculty Of Engineering And Physical Sciences, Centre For Communication Systems Research, 2004 - 2008

## Academic and Administrative Experience

Enstitü Müdür Danışmanı, Middle East Technical University, Graduate School of Informatics, Modeling and Simulation, 2017 - Continues

Head of Department, Middle East Technical University, Graduate School of Informatics, Modelleme Ve Similasyon Anabilim Dalı, 2015 - 2018

Middle East Technical University, Graduate School of Informatics, Modelleme Ve Similasyon Anabilim Dalı, 2012 - 2015

## Jury Memberships

Doctorate, Doctorate, Aalto University, May, 2021

Award, ODTÜ ÖED Serhat Özyar Yılın Genç Bilim İnsanı Ödül Jürisi, Orta Doğu Teknik Üniversitesi, January, 2019

Award, Türk Eğitim Vakfı (TEV) Üstün Başarı Bursu , Türk Eğitim Vakfı, December, 2018

## Designed Lessons

Temizel A., Hacıhabiboğlu H., Multimedia Standards, Postgraduate, 2017 - 2018

Hacıhabiboğlu H., Süner E., Research Methods, Postgraduate, 2017 - 2018

Hacıhabiboğlu H., Multimedia Signal Processing, Postgraduate, 2016 - 2017

## Research Infrastructure Information

Hacıhabiboğlu H., ODTÜ Uzamsal Ses Sistemleri Araştırma Grubu Laboratuvarı, March 2014

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Spherically Steerable Vector Differential Microphone Arrays**  
Hacıhabiboglu H.  
IEEE/ACM Transactions on Audio Speech and Language Processing, 2024 (SCI-Expanded)
- II. **sphstat: A Python package for inferential statistics on vectorial data on the unit sphere**  
Hacıhabiboğlu H.  
SOFTWAREX, vol.24, pp.1-8, 2023 (SCI-Expanded)
- III. **3D Perceptual Soundfield Reconstruction via Virtual Microphone Synthesis**  
ERDEM E., Cvetkovic Z., Hacıhabiboglu H.  
IEEE/ACM Transactions on Audio Speech and Language Processing, vol.31, pp.1305-1317, 2023 (SCI-Expanded)
- IV. **Improving Sleep-Wake Behaviors Using Mobile App Gamification**  
Ilhan A. E., ŞENER PEDGLE Y., HACIHABİBOĞLU H.  
ENTERTAINMENT COMPUTING, vol.40, 2022 (SCI-Expanded)
- V. **Scattering Delay Network Simulator of Coupled Volume Acoustics**

Atalay T. B., Su Gul Z., De Sena E., Cvetkovic Z., Hacıhabiboğlu H.

IEEE-ACM TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.30, pp.582-593, 2022 (SCI-Expanded)

- VI. **Simulation of coupled volume acoustics with coupled volume scattering delay network models**  
Atalay T., Gül Z. S., De Sena E., Cvetkovic Z., Hacıhabiboğlu H.  
THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, vol.117, no.2021, pp.1, 2021 (SCI-Expanded)
- VII. **Sparse Representations with Legendre Kernels for DOA Estimation and Acoustic Source Separation**  
Coteli M. B., Hacıhabiboğlu H.  
IEEE/ACM Transactions on Audio Speech and Language Processing, vol.29, pp.2296-2309, 2021 (SCI-Expanded)
- VIII. **Effects of interpersonal familiarity on the auditory distance perception of level-equalized reverberant speech**  
Demirkaplan O., HACIHABİBOĞLU H.  
ACTA ACUSTICA, vol.4, no.6, 2020 (SCI-Expanded)
- IX. **Localization Uncertainty in Time-Amplitude Stereophonic Reproduction**  
De Sena E., Cvetkovic Z., Hacıhabiboğlu H., Moonen M., van Waterschoot T.  
IEEE-ACM TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.28, pp.1000-1015, 2020 (SCI-Expanded)
- X. **Multiple Sound Source Localization With Steered Response Power Density and Hierarchical Grid Refinement**  
COTELI M. B., OLGUN O., HACIHABİBOĞLU H.  
IEEE-ACM TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.26, no.11, pp.2215-2229, 2018 (SCI-Expanded)
- XI. **Perceptual Spatial Audio Recording, Simulation, and Rendering**  
HACIHABİBOĞLU H., De Sena E., Cvetkovic Z., Johnston J., Smith J. O.  
IEEE SIGNAL PROCESSING MAGAZINE, vol.34, no.3, pp.36-54, 2017 (SCI-Expanded)
- XII. **Efficient Synthesis of Room Acoustics via Scattering Delay Networks**  
De Sena E., HACIHABİBOĞLU H., Cvetkovic Z., Smith J. O.  
IEEE-ACM TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.23, no.9, pp.1478-1492, 2015 (SCI-Expanded)
- XIII. **Theoretical Analysis of Open Spherical Microphone Arrays for Acoustic Intensity Measurements**  
HACIHABİBOĞLU H.  
IEEE-ACM TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.22, no.2, pp.465-476, 2014 (SCI-Expanded)
- XIV. **Analysis and Design of Multichannel Systems for Perceptual Sound Field Reconstruction**  
De Sena E., HACIHABİBOĞLU H., Cvetkovic Z.  
IEEE TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.21, no.8, pp.1653-1665, 2013 (SCI-Expanded)
- XV. **Multichannel Dereverberation Theorems and Robustness Issues**  
HACIHABİBOĞLU H., Cvetkovic Z.  
IEEE TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.20, no.2, pp.676-689, 2012 (SCI-Expanded)
- XVI. **On the Design and Implementation of Higher Order Differential Microphones**  
De Sena E., HACIHABİBOĞLU H., Cvetkovic Z.  
IEEE TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.20, no.1, pp.162-174, 2012 (SCI-Expanded)
- XVII. **Allpass variable fractional delay filters by pole loci interpolation**  
HACIHABİBOĞLU H.  
ELECTRONICS LETTERS, vol.46, no.8, pp.558-559, 2010 (SCI-Expanded)
- XVIII. **Simulation of Directional Microphones in Digital Waveguide Mesh-Based Models of Room Acoustics**  
HACIHABİBOĞLU H., GÜNEL B., CVETKOVIC Z.  
IEEE TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.18, no.2, pp.213-223, 2010 (SCI-

Expanded)

- XXIX. **Perceptual simplification for model-based binaural room auralisation**  
Hacihabiboglu H., Murtagh F.  
APPLIED ACOUSTICS, vol.69, no.8, pp.715-727, 2008 (SCI-Expanded)
- XX. **Time-domain simulation of directive sources in 3-D digital waveguide mesh-based acoustical models**  
HACIHABİBOĞLU H., Gunel B., kondoz a.  
IEEE TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.16, no.5, pp.934-946, 2008 (SCI-Expanded)
- XXI. **Acoustic source separation of convolutive mixtures based on intensity vector statistics**  
GÜNEL B., HACIHABİBOĞLU H., Kondoza A.  
IEEE TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, vol.16, no.4, pp.748-756, 2008 (SCI-Expanded)
- XXII. **On the accuracy of first-order numerical derivatives in multidimensional digital waveguide mesh topologies**  
HACIHABİBOĞLU H., Gunel B., kondoz a.  
IEEE SIGNAL PROCESSING LETTERS, vol.15, pp.9-12, 2008 (SCI-Expanded)
- XXIII. **Analysis of root displacement interpolation method for tunable allpass fractional-delay filters**  
HACIHABİBOĞLU H., Guenel B., kondoz a.  
IEEE TRANSACTIONS ON SIGNAL PROCESSING, vol.55, no.10, pp.4896-4906, 2007 (SCI-Expanded)
- XXIV. **Wavelet packet based analysis of sound fields in rooms using coincident microphone arrays**  
Gunel B., HACIHABİBOĞLU H., kondoz a.  
APPLIED ACOUSTICS, vol.68, no.7, pp.778-796, 2007 (SCI-Expanded)
- XXV. **An observational study of the precedence effect**  
HACIHABİBOĞLU H., MURTAGH F.  
ACTA ACUSTICA UNITED WITH ACUSTICA, vol.92, no.3, pp.440-456, 2006 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Blind source separation and directional audio synthesis for binaural auralization of multiple sound sources using microphone array recordings**  
GÜNEL B., HACIHABİBOĞLU H., Kondoza A.  
Proceedings of Meetings on Acoustics, vol.4, 2008 (Non Peer-Reviewed Journal)

## Books & Book Chapters

- I. **Procedural Synthesis of Gunshot Sounds Based on Physically Motivated Models**  
HACIHABİBOĞLU H.  
in: Game Dynamics, Oliver Korn, Newton Lee, Editor, Springer International Publishing, Cham, pp.47-69, 2017
- II. **Sound source localization: Conventional methods and intensity vector direction exploitation**  
Günel Kılıç B., Hacihabiboğlu H.  
in: Machine Audition Principles Algorithms and Systems, Wenwu Weng, Editor, Idea Group Publishing (IGP) , New-York, pp.126-161, 2011

## Refereed Congress / Symposium Publications in Proceedings

- I. **Sound field interpolation via sparse plane wave decomposition for 6DoF immersive audio**  
Olgun O., Erdem E., Hacihabiboğlu H.  
2023 Immersive and 3D Audio: from Architecture to Automotive (I3DA), Bologna, Italy, 5 - 07 September 2023,

pp.1-11

- II. **User Expectation of Room Acoustic Parameters in Virtual Reality Environments**  
Burnett B., Neidhart A., Cvetkovic Z., HACIHABİBOĞLU H., De Sena E.  
2023 Immersive and 3D Audio: from Architecture to Automotive (I3DA), Bologna, Italy, 05 September 2023, pp.1-10
- III. **6DoF Audio: Moving beyond the constraints of 3D sound**  
HACIHABİBOĞLU H.  
2023 Immersive and 3D Audio: from Architecture to Automotive (I3DA), Bologna, Italy, 05 September 2023, pp.1
- IV. **Low-Complexity Higher Order Scattering Delay Networks**  
Vincelas L., Scerbo M., Hacıhabiboğlu H., Cvetkovic Z., De Sena E.  
2023 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, WASPAA 2023, New York, United States Of America, 22 - 25 October 2023, vol.2023-October
- V. **Rotation Calibration of Rigid Spherical Microphone Arrays for Multi-perspective 6DoF Audio Recordings**  
Olgun O., ERDEM E., HACIHABİBOĞLU H.  
2021 Immersive and 3D Audio: from Architecture to Automotive (I3DA), Bologna, Italy, 08 September 2021
- VI. **INTERNAL TIME DELAY CALIBRATION OF RIGID SPHERICAL MICROPHONE ARRAYS FOR MULTI-PERSPECTIVE 6DOF AUDIO RECORDINGS**  
ERDEM E., Olgun O., HACIHABİBOĞLU H.  
IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA), New York, United States Of America, 17 - 20 October 2021, pp.241-245
- VII. **Evaluation of the Perceived Naturalness of Artificial Reverberation Algorithms**  
Djordjević S., Hacıhabiboğlu H., Cvetkovic Z., De Sena E.  
148th AES Convention, New York, United States Of America, 2 - 05 June 2020, no.10353, pp.1-10
- VIII. **Preliminary Results in Evaluating the Pleasantness of an Interviewing Candidate Based on Psychophysiological Signals**  
ARI F., AVENOĞLU B., İLERİ F., ERKUŞ E. C., HACIHABİBOĞLU H.  
eINTERFACE'19The15th International Summer Workshop on Multimodal Interfaces, Ankara, Turkey, 8 July - 02 August 2019
- IX. **Data-driven Threshold Selection for Direct Path Dominance Test**  
Olgun O., Hacıhabiboğlu H.  
23rd International Congress on Acoustics, Aachen, Germany, 9 - 13 September 2019, pp.3313-3320
- X. **PERCEPTUAL SOUNDFIELD RECONSTRUCTION IN THREE DIMENSIONS VIA SOUND FIELD EXTRAPOLATION**  
Erdem E., De Sena E., HACIHABİBOĞLU H., Cvetkovic Z.  
44th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brighton, United Kingdom, 12 - 17 May 2019, pp.8023-8027
- XI. **MULTIPLE SOUND SOURCE LOCALIZATION WITH RIGID SPHERICAL MICROPHONE ARRAYS VIA RESIDUAL ENERGY TEST**  
Coteli M. B., HACIHABİBOĞLU H.  
44th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brighton, United Kingdom, 12 - 17 May 2019, pp.790-794
- XII. **LOCALIZATION OF MULTIPLE SOURCES IN THE SPHERICAL HARMONIC DOMAIN WITH HIERARCHICAL GRID REFINEMENT AND EB-MUSIC**  
Olgun O., HACIHABİBOĞLU H.  
16th International Workshop on Acoustic Signal Enhancement (IWAENC), Tokyo, Japan, 17 - 20 September 2018, pp.101-105
- XIII. **ACOUSTIC SOURCE SEPARATION USING RIGID SPHERICAL MICROPHONE ARRAYS VIA SPATIALLY WEIGHTED ORTHOGONAL MATCHING PURSUIT**  
Coteli M. B., HACIHABİBOĞLU H.  
16th International Workshop on Acoustic Signal Enhancement (IWAENC), Tokyo, Japan, 17 - 20 September 2018,

pp.81-85

- XIV. **PERCEPTUAL AUDIO SOURCE CULLING FOR VIRTUAL ENVIRONMENTS**  
Metan A. C., HACIHABİBOĞLU H.  
19th International Conference on Digital Audio Effects (DAFx), Brno, Czech Republic, 5 - 09 September 2016,  
pp.201-208
- XV. **Creating Awareness of Sleep Wake Hours by Gamification**  
İLHAN A. E., ŞENER PEDGLEY B., HACIHABİBOĞLU H.  
11th International Conference, PERSUASIVE, 05 April 2016 - 07 April 2017, pp.122-133
- XVI. **ACOUSTIC SOURCE SEPARATION USING THE SHORT-TIME QUATERNION FOURIER TRANSFORMS OF PARTICLE VELOCITY SIGNALS**  
HACIHABİBOĞLU H.  
IEEE International Conference on Acoustics, Speech, and Signal Processing, Shanghai, China, 20 - 25 March 2016,  
pp.425-429
- XVII. **On the Performance of Acoustic Intensity based Source Localization with an Open Spherical Microphone Array**  
Çöteli M. B., HACIHABİBOĞLU H.  
139th Convention of the Audio Engineering Society, New-York, United States Of America, 29 October - 01 November 2015
- XVIII. **MEPHISTO A source to source transpiler from Pure Data to Faust**  
Demir A. O., HACIHABİBOĞLU H.  
International Conference on Sound and Music Computing 2015, MAYNOOTH, Ireland, 28 July - 01 August 2015
- XIX. **Automatic Speech Emotion Recognition using Auditory Models with Binary Decision Tree and SVM**  
Yuncu E., HACIHABİBOĞLU H., Bozsahin C.  
22nd International Conference on Pattern Recognition (ICPR), Stockholm, Sweden, 24 - 28 August 2014, pp.773-778
- XX. **SOUND SOURCE LOCALISATION PERFORMANCE OF OPEN SPHERICAL ACOUSTIC INTENSITY PROBES UNDER REVERBERANT CONDITIONS**  
HACIHABİBOĞLU H.  
22nd IEEE Signal Processing and Communications Applications Conference (SIU), Trabzon, Turkey, 23 - 25 April 2014, pp.802-805
- XXI. **Açık küresel akustik yeğlilik sondalarının yankıslımlı koşullardaki ses kaynağı yön kestirimi performansı**  
HACIHABİBOĞLU H.  
IEEE 22. Sinyal İşleme Uygulamaları Kurultayı, Trabzon, Turkey, 23 - 25 April 2014
- XXII. **Birinci dereceden açık küresel mikrofon dizileriyle akustik yeğlilik ölçümü**  
HACIHABİBOĞLU H.  
10. Ulusal Akustik Kongresi, Turkey, 17 - 18 December 2013
- XXIII. **ON THE ACCURACY OF OPEN SPHERICAL MICROPHONE ARRAYS FOR MEASURING ACOUSTIC INTENSITY**  
Hacihabiboglu H.  
14th IEEE Workshop on Applications of Signal Processing to AudNew Paltzio and Acoustics (WASPAA), New-York, United States Of America, 20 - 23 October 2013
- XXIV. **Rhythm action games the sonic interaction perspective**  
Erkut C., HACIHABİBOĞLU H.  
AES 49th International Conference on Game Audio, 6 - 08 February 2013
- XXV. **Frequency Domain Scattering Delay Networks for Simulating Room Acoustics in Virtual Environments**  
De Sena E., HACIHABİBOĞLU H., Cvetkovic Z.  
2011 Seventh International Conference on Signal Image Technology Internet-Based Systems, Dijon, France, 28 November - 01 December 2011
- XXVI. **A GENERALIZED DESIGN METHOD FOR DIRECTIVITY PATTERNS OF SPHERICAL MICROPHONE**

## ARRAYS

De Sena E., Hacıhabiboglu H., Cvetkovic Z.

IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Prague, Czech Republic, 22 - 27 May 2011, pp.125-128

- XXVII. **Scattering Delay Network an interactive reverberator for computer games**  
Enzo D. S., HACIHABİBOĞLU H., Cvetkovic Z.  
AES 41st International Conference on Audio for Games, 2 - 04 February 2011
- XXVIII. **Discrete wavelet transform based shift invariant analysis scheme for transient sound signals**  
Wasim A., HACIHABİBOĞLU H., kondoz a.  
13th Int. Conf. on Digital Audio Effects (DAFx-10), 6 - 10 September 2010
- XXIX. **Performance of Closed Form Acoustic Scene Decomposition for Forensic Analysis**  
Günel Kiliç B., Nikopoulos G., Hacıhabiboğlu H., Kondoz A.  
AES 39th International Conference: Audio Forensics: Practices and Challenges, Hillerod, Denmark, 17 - 19 June 2010
- XXX. **Stereophonic rendering of source distance using DWM FDN artificial reverberators**  
Mate Cid S., HACIHABİBOĞLU H., Cvetkovic Z.  
128th Convention of the Audio Engineering Society, 22 - 25 May 2010
- XXXI. **Design of a circular microphone array for panoramic audio recording and reproduction Microphone directivity**  
HACIHABİBOĞLU H., Enzo D. S., Cvetkovic Z.  
128th Convention of the Audio Engineering Society, 22 - 25 May 2010
- XXXII. **Design of a circular microphone array for panoramic audio recording and reproduction Array radius**  
HACIHABİBOĞLU H., Enzo D. S., Cvetkovic Z.  
128th Convention of the Audio Engineering Society, 22 - 25 May 2010
- XXXIII. **Perceptual evaluation of a circularly symmetric microphone array for panoramic recording of audio**  
Enzo D. S., HACIHABİBOĞLU H., Cvetkovic Z.  
2nd Int. Symp. on Ambisonics, and Spherical Acoustics, 6 - 07 May 2010
- XXXIV. **Panoramic recording and reproduction of multichannel audio using a circular microphone array**  
HACIHABİBOĞLU H., Cvetkovic Z.  
2009 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, New Paltz, NY, USA, 18 - 21 October 2009
- XXXV. **Morphing of transient sounds based on shift invariant discrete wavelet transform and singular value decomposition**  
Ahmad W., HACIHABİBOĞLU H., kondoz a.  
2009 IEEE International Conference on Acoustics, Speech and Signal Processing, Taipei, Taiwan, 19 - 24 April 2009
- XXXVI. **Intensity vector direction exploitation for exhaustive blind source separation of convolutive mixtures**  
GÜNEL KILIÇ B., HACIHABİBOĞLU H., kondoz a.  
2009 IEEE International Conference on Acoustics, Speech and Signal Processing, Taipei, Taiwan, 19 - 24 April 2009
- XXXVII. **Analysis synthesis model for transient impact sounds by stationary wavelet transform and singular value decomposition**  
Ahmad W., HACIHABİBOĞLU H., kondoz a.  
International Computer Music Conference (ICMC'08), 24 - 29 August 2008
- XXXVIII. **Blind source separation and directional audio synthesis for binaural auralization of multiple sound sources using microphone array recordings**  
GÜNEL KILIÇ B., HACIHABİBOĞLU H., kondoz a.  
ASA-EAA 2nd Joint Conference, 29 June - 04 July 2008
- XXXIX. **Source directivity simulation in digital waveguide mesh based room acoustics models**  
Hacıhabiboğlu H., Günel Kiliç B., Kondoz A.  
AES 30th International Conference on Intelligent Audio Environments, Rovaniemi, Finland, 15 - 17 March 2007

- XL. Plane wave decomposition with regularization using a single rotating microphone**  
Günel Kiliç B., Hacıhabiboğlu H., Kondoç A.  
AES 30th International Conference on Intelligent Audio Environments, Rovaniemi, Finland, 15 - 17 March 2007
- XLI. Perception based simplification for binaural room auralisation**  
HACIHABİBOĞLU H., murtagh f.  
International Conference on Auditory Display (ICAD-06), 20 - 23 June 2006
- XLII. Interpolated Allpass Fractional Delay Filters Using Root Displacement**  
HACIHABİBOĞLU H., GÜNEL KILIÇ B., kondoç a.  
2006 IEEE International Conference on Acoustics Speed and Signal Processing Proceedings, Toulouse, France, 14 - 19 May 2006
- XLIII. Head related transfer function filter interpolation by root displacement**  
HACIHABİBOĞLU H., GÜNEL KILIÇ B., kondoç a.  
IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, 2005., New Paltz, NY, USA, 16 - 19 October 2005
- XLIV. Sound field analysis using a compact pressure gradient array**  
GÜNEL KILIÇ B., HACIHABİBOĞLU H., kondoç a.  
IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, 2005., New Paltz, NY, USA, 16 - 19 October 2005
- XLV. A fixed cost variable length auralization filter model utilizing the precedence effect**  
HACIHABİBOĞLU H.  
2003 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (IEEE Cat. No.03TH8684), New Paltz, NY, USA, 19 - 22 October 2003
- XLVI. Modelling sound source localization under precedence effect using multivariate Gaussian mixtures**  
HACIHABİBOĞLU H.  
115th Convention of the Audio Engineering Society, Preprint, 10 - 13 October 2002
- XLVII. Interpolation of low order HRTF filters using a zero displacement measure**  
HACIHABİBOĞLU H.  
Forum Acusticum Sevilla, 16 - 20 September 2002
- XLVIII. Musical instrument recognition with wavelet envelopes**  
HACIHABİBOĞLU H., canagarajah n.  
Forum Acusticum Sevilla, 16 - 20 September 2002
- XLIX. Wavelet based spectral smoothing for head related transfer function filter design**  
HACIHABİBOĞLU H.  
AES 22nd Conf. on Virtual, Synthetic and Entertainment Audio, 15 - 17 June 2002
- L. Wavelet based spectral smoothing for head-related transfer function filter design**  
Hacıhabiboglu H., Gunel B., Murtagh F.  
22nd International Congress of the Audio-Engineering-Society, Espoo, Finland, 15 - 17 June 2002, pp.131-136
- LI. Instrument based wavelet packet decomposition for audio feature extraction**  
HACIHABİBOĞLU H., canagarajah n.  
Int. Symp. on Musical Acoustics (ISMA-01), 10 - 14 September 2001

## **Episodes in the Encyclopedia**

- I. Encyclopedia of Information Science and Technology**  
HACIHABİBOĞLU H.  
IGI Global, pp., 2019

## **Supported Projects**

HACIHABİBOĞLU H., Project Supported by Higher Education Institutions, Altı serbestlik dereceli sahne temelli ses kodlama ve sıkıştırma için derin öğrenme temelli bir MPAI standardı geliştirilmesi, 2024 - Continues  
HACIHABİBOĞLU H., TÜBİTAK Project, Measurement of sound source directivity using secondary source models in the spherical harmonic domain, 2023 - 2024  
HACIHABİBOĞLU H., ÜSTÜN E., Project Supported by Higher Education Institutions, Dördey-temelli Mikrofon Dizisi Sinyal İşleme Yöntemleriyle Ses Kaynaklarının Konum Kestirimi ve Ayrılması, 2018 - 2024  
HACIHABİBOĞLU H., TÜBİTAK Project, Altı Serbestlik Dereceli Kapsayıcı Ortamlar İçin Uzamsal Ses Sinyal İşleme, 2019 - 2023  
HACIHABİBOĞLU H., TÜBİTAK Project, Analiz-Temelli Sentez Yöntemleriyle Uzamsal Ses Üretimi, 2014 - 2018  
HACIHABİBOĞLU H., Project Supported by Higher Education Institutions, AÇIK KÜRESEL AKUSTİK YEĞİNLİK SONDALARI KULLANILARAK SES KAYNAĞI KONUMLANDIRMA, 2013 - 2015

## Patent

Hacıhabiboğlu H., Küresel Olarak Yönlendirilebilir Vektör Diferansiyel Mikrofon Dizileri, Patent, CHAPTER H Electricity, The Invention Registration Number: Bir dairesel ark üzerinde eş düzlemsel olarak konumlandırılan sensörlerden elde edilen basınç ve akustik parçacık hızı sinyallerini kullanan, küresel olarak yönlendirilebilir yönselliğe sahip mikrofon dizisi yapısı açıklanmaktadır. Buluş, belirli bir kademeye kadar ses alanının tüm uzamsal kısmı türevlerinin hesaplanmasına olanak sağlamaktadır. Bu uzamsal türevler, kaydedilen ses alanının küresel harmonik dönüşümünü elde etmek için kullanılmaktadır. Küresel harmonik dönüşüm adet katsayıları, küresel yönde değişmez akustik kip huzme oluşturmasında kullanılmaktadır. , Standard Registration, 2022  
Hacıhabiboğlu H., Çöteli M. B., JOINT SOURCE LOCALIZATION AND SEPARATION METHOD FOR ACOUSTIC SOURCES, Patent, CHAPTER H Electricity, The Invention Registration Number: US 11,482,239 B2 , Standard Registration, 2022  
Hacıhabiboğlu H., Çöteli M. B., Direction of Arrival Estimation and Separation Method for Acoustic Sources, Patent, CHAPTER H Electricity, The Invention Registration Number: TR 2018 13344 B , Standard Registration, 2021  
Hacıhabiboğlu H., Spherically steerable vector differential microphone arrays, Patent, CHAPTER H Electricity, The Invention Recourse Number: PCT/TR2020/050784 , Standard Registration, 2021  
Hacıhabiboğlu H., Üç boyutlu yönlendirilebilen vektör türeve-dayalı mikrofon dizisi, Patent, CHAPTER H Electricity, The Invention Recourse Number: 2019/13009 , Standard Registration, 2019  
HACIHABİBOĞLU H., GÜNEL KILIÇ B., Acoustic source separation, Patent, CHAPTER G Physics, Standard Registration, 2015  
Hacıhabiboğlu H., Cvetkovic Z., De Sena E., Microphone Array, Patent, CHAPTER H Electricity, The Invention Registration Number: US 8976977 B2 , Standard Registration, 2015  
Hacıhabiboğlu H., Cvetkovic Z., De Sena E., Electronic device with digital reverberator and method, Patent, CHAPTER H Electricity, The Invention Registration Number: US 8908875 B2 , Standard Registration, 2014

## Activities in Scientific Journals

IEEE Signal Processing Letters, Committee Member, 2021 - Continues  
IEEE-ACM TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, Committee Member, 2017 - 2021

## Memberships / Tasks in Scientific Organizations

Moving Picture, Audio and Data Coding by Artificial Intelligence (MPAI), Member, 2021 - Continues, Switzerland  
TSE MTC 067 "Bilgi Teknolojileri" Ulusal Ayna Komitesi, Member, 2019 - Continues  
TSE MTC 169 "Ses, Resim, Multimedya ve Hipermedya Bilgisi Kodlaması" Ulusal Ayna Komitesi, Member, 2019 - Continues  
UK Research and Innovation (UK) Peer Review College, Member, 2018 - Continues

Audio Engineering Society (AES), Member, 2002 - Continues

Türk Akustik Derneği, Member, 2002 - Continues

IEEE, Member, 1997 - Continues

Uluslararası İlişkiler Daire Başkanlığı (UİDB) U2020 Koordinatörlüğü Destekleme Programı Danışma Kurulu, Member of Advisory Board, 2019 - 2022, Turkey

## Scientific Refereeing

THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, Journal Indexed in SCI-E, December 2023

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, SONICMOTION TEKNOLOJİ LİMİTED ŞİRKETİ, Turkey, December 2023

IEEE/ACM TRANSACTIONS ON SPEECH AND LANGUAGE PROCESSING, Journal Indexed in SCI-E, December 2022

THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, Journal Indexed in SCI-E, December 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, December 2022

TUBITAK Project, 3501 - National Young Researcher Career Development Program, Middle East Technical University, Turkey, December 2022

IEEE/ACM TRANSACTIONS ON SPEECH AND LANGUAGE PROCESSING, Journal Indexed in SCI-E, November 2022

THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, Journal Indexed in SCI-E, October 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, TUBITAK Horizon Coordination Support Program, Middle East Technical University, Turkey, September 2022

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, Middle East Technical University, Turkey, July 2022

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, MECO BİLİŞİM PAZARLAMA SANAYİ VE TİCARET ANONİM ŞİRKETİ, Turkey, July 2022

TUBITAK Project, 1501 - Industry R & D Projects Support Program, REO-TEK ELEKTRONİK YAZILIM TAS. EĞİTİM SAN. VE TİC. LTD. ŞTİ., Turkey, July 2022

TUBITAK Project, 1512 - Progressive Support Program for Entrepreneurship, AMAZOI BİLİŞİM SİSTEMLERİ ELEKTRONİK ARGE DANIŞMANLIK SİMÜLASYON SAN. VE TİC. LTD. ŞTİ., Turkey, May 2022

IEEE/ACM TRANSACTIONS ON SPEECH AND LANGUAGE PROCESSING, Journal Indexed in SCI-E, September 2021

SIGNAL PROCESSING, Journal Indexed in SCI-E, August 2021

IEEE SIGNAL PROCESSING LETTERS, Journal Indexed in SCI-E, May 2021

DIGITAL SIGNAL PROCESSING, Journal Indexed in SCI-E, January 2020

TUBITAK Project, 1501 - Industry R & D Projects Support Program, SAVRONİK ELEKTRONİK SAN. VE TİC. A.Ş., Turkey, August 2019

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, RİGEL TEKNOLOJİ VE YAZILIM DANIŞMANLIK ANONİM ŞİRKETİ, Turkey, June 2019

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, MORA YAZILIM BİLİŞİM DANIŞMANLIK REKLAM İTHALAT İHRACAT SANAYİ VE TİCARET LİMİTED ŞİRKETİ, Turkey, June 2019

IEEE-ACM TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, Journal Indexed in SCI-E, May 2019

Project Supported by Public Organizations in Other Countries, EPSRC, United Kingdom, March 2019

H2020 Project, RIA Research and Innovation Actions Project, Avrupa Komisyonu, Luxembourg, February 2019

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, RİGEL TEKNOLOJİ VE YAZILIM DANIŞMANLIK ANONİM ŞİRKETİ (İSTANBUL), Turkey, December 2018

APPLIED ACOUSTICS, SCI Journal, November 2018

Project Supported by Public Organizations in Other Countries, EPSRC, United Kingdom, November 2018

JOURNAL OF THE AUDIO ENGINEERING SOCIETY, SCI Journal, September 2018

H2020 Project, RIA Research and Innovation Actions Project, Avrupa Komisyonu, Luxembourg, August 2018

IEEE-ACM TRANSACTIONS ON AUDIO SPEECH AND LANGUAGE PROCESSING, Journal Indexed in SCI-E, July 2018

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, June 2018

IEEE SIGNAL PROCESSING LETTERS, Journal Indexed in SCI-E, May 2018

ACTA ACUSTICA UNITED WITH ACUSTICA, SCI Journal, April 2018

## Tasks In Event Organizations

Hacıhabiboğlu H., International Conference on Immersive and 3D Audio, Scientific Congress, Bologna, Italy, Ekim 2021

## Scientific Research / Working Group Memberships

Odtü Uzamsal Ses Sistemleri Araştırma Grubu, Middle East Technical University, Turkey, <http://www.sparglab.org>, 2013 - Continues

## Metrics

Publication: 80  
Citation (WoS): 399  
Citation (Scopus): 580  
H-Index (WoS): 10  
H-Index (Scopus): 12

## Congress and Symposium Activities

2021 IEEE International Conference on Acoustics, Speech and Signal Processing, Invited Speaker, Ontario, Canada, 2022  
International Conference on Immersive and 3D Audio, Session Moderator, Bologna, Italy, 2021

## Invited Talks

International Conference on Immersive and 3D Audio (i3DA 2023), Conference, University of Bologna, Italy, September 2023

AES AVAR 2020 / Interactive Room Acoustics Synthesis for XR, Conference, DigiPen Institute of Technology, United States Of America, August 2020

Spherical Microphone Arrays: Theory and Applications, Seminar, AES British Section, United Kingdom, December 2017

## **Scholarships**

SPUR Scholarship, University, 2001 - 2004

TEV/Chevening Scholarship, British Council, 2000 - 2001

## **Awards**

Hacihabiboğlu H., Certificate of Appreciation for Outstanding Contributions to the Development of MPAI-CAE Standard, Moving Picture, Audio And Data Coding By Artificial Intelligence (Mpai), January 2022

Hacihabiboğlu H., IEEE Senior Member, Ieee, March 2012

## **Non Academic Experience**

MPAI