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Yusuke Hioka
Ph.D.

Personal Profile

With a broad background in signal processing, I am an organised and enthusiastic lecturer specialising in sensor array and sensing technologies for audio and acoustics. I started my academic career at the University of Canterbury from the beginning of 2013 where I served courses in wide range of subjects within electrical engineering while I also supervised several students studying towards their Bachelors and Ph.D degrees. In 2014 I joined the Department of Mechanical and Mechatronics Engineering at the University of Auckland as a Senior Lecturer. I am currently an Associate Processor and teach courses for the Mechatronics programme.

Before I came to New Zealand, I worked as a Research Engineer for NTT, the largest Japanese telecom company, after receiving my Ph.D in Engineering in 2005. My main responsibilities at NTT were fundamental research on microphone array signal processing as well as the development of new commercial products using acoustic technologies invented in our research. From 2010 to 2011, I stayed in Victoria University of Wellington as a visiting researcher, working with Prof. Bastiaan Kleijn. Ever since arriving in New Zealand, I have built strong personal connections with researchers in New Zealand.

Education

Apr 2002 – Mar 2005	**Ph.D in Engineering**, *Graduate School of Science and Technology, Keio University*, Yokohama, Japan, Major: Integrated Design Engineering, Signal Processing Laboratory.
Apr 2000 – Mar 2002	**Master of Science in Engineering**, *Graduate School of of Science and Technology, Keio University*, Yokohama, Japan, Major: Integrated Design Engineering, Signal Processing Laboratory. GPA: 3.94/4.00
Apr 1996 – Mar 2000	**Bachelor of Engineering**, *Faculty of Science and Engineering, Keio University*, Yokohama, Japan, Major: System Design Engineering. GPA: 3.79/4.00

Ph.D thesis

Title	*A Voice Activity Detection and Speaker Direction Estimation Using Microphone Arrays*

Supervisor Professor Nozomu Hamada (now Professor Emeritus at Keio University)

Job History

2022–current **Associate Professor (Tenured)**.

2019–2021 **Senior Lecturer above the bar (Tenured)**.

2014–2018 **Senior Lecturer (Tenured)**, *The University of Auckland*, Department of Mechanical Engineering, Auckland New Zealand.

I have been teaching wide range of courses mainly in the mechatronics programme. My main responsibilities include:

○ Teaching
  - MECHENG201: Electronics and Computer for Mechanical Engineers (2017)
  - MECHENG313: Real-time Software Design (2014–2017, 2019–current) / Course Coordinator (2017).
  - MECHENG370: Analog Circuit Design (2015–2019) / Course Coordinator (2015–2019).
  - MECHENG370: Electronics and Signal Processing (2020–current) / Course Coordinator (2020–current).
  - MECHENG705: Mechatronics System (2016–current).
  - MECHENG726: Acoustics for Engineers (2017–current) / Course Coordinator (2021).

○ Research and project supervision
  - Postgraduate students under supervision
    · Mr. Francis Del Prado (ME: Main supervisor, co-supervision with A/Prof Catherine Watson; Mar 2015 - Feb 2016)
    · Ms. Chenhui Jiang (ME: Main supervisor; Mar 2019 - Feb 2020)
    · Ms. Seo In Park (ME: Main supervisor; Mar 2020 - Apr 2021)
    · Ms. Charlene Lo (ME: Main supervisor; Mar 2021 - Apr 2022)
    · Mr. Benjamin Yen (PhD: Main supervisor, co-supervision with Prof Brian Mace; Jul 2016 - Dec 2020)
    · Mr. Nicholas Eng (PhD: Main supervisor, co-supervision with A/Prof Catherine Watson; Jul 2018 -)
    · Ms. Clara Zhang (PhD: Main supervisor, co-supervision with A/Prof Catherine Watson; Sep 2021 -)
    · Dr. Khairul Affendy Md Nor (PhD: Co-supervisor, co-supervision with Prof Brian Mace)
    · Ms. Yonghui Tao (PhD: Co-supervisor, co-supervision with Dr Yuqian Lu; Mar 2021 -)
  - MECHENG700(Former MECHENG762): Mechatronics Research Project (2015–/supervised 48 students in total)

○ Administration and service
  - Course Advisor (Mechatronics) (2015–)
  - Faculty Research Committee (2016–2018)
  - Deputy Director, Acoustics Research Centre (2017 – 2021)
  - Co-Director (Research), Acoustics Research Centre (2022 –)

2013–2014 **Lecturer**, *University of Canterbury*, Department of Electrical and Computer Engineering, Christchurch New Zealand.

I served as a lecturer teaching wide range of courses in the undergraduate curriculum of the department. My main responsibilities included:

- Teaching
  - ENEL200: Electrical and Computer Engineering Design.
  - ENEL270: Principles of Electronics and Devices.
  - ENEL320: Signals and Communications.
  - ENEL321: Control Systems.
- Research and project supervision
  - ENEL400: Electrical and Computer Engineering Research Project (supervised nine students in total).
  - Co-supervision of a Ph.D student.
- Administration
  - Practical Work Assessment Coordinator.
  - Departmental outreach committee member.
  - Course coordinator (ENEL200).
  - Masters theses examiner.

2005–2012 **Research Engineer**, *NTT Corporation*, NTT Cyber Space Laboratories, Tokyo Japan.

I worked for an acoustic information research group. The group had two tasks: working on research of acoustic/audio signal processing and developing technologies for telecommunication devices/services using our research inventions. My main responsibilities included:

- Research
  - Speech enhancement, noise reduction and measurement of acoustical parameters in a room using microphone arrays.
  - Publication of journal papers, patent application, and presentation at international conferences.
- Supervision of junior staff
  - Supervised their research.
  - Undertook management role of a small team for product design and development.
- Product Development
  - Designing the specifications and adjusting the parameters to provide the best performance, organising and sharing a development schedule with manufacturers.
  - In September 2010, a new voice conference system that includes my invention was launched. It has been selling well in Japanese market.

2010–2011 **Visiting Researcher**, *Victoria University of Wellington*, School of Engineering and Computer Science, Wellington New Zealand.

On my sabbatical year at NTT, I visited Wellington to work with Prof. Bastiaan Kleijn on research in distributed microphone networks and blind source separation. I also worked with other academic staff members and Ph.D students at the university, and with researchers at Industrial Research Ltd. (now Callaghan Innovation) on projects including: a) kiwi bird spotting using microphone array, and b) crosstalk canceller exploiting impulse response shortening technique.

2002–2005 **Research Associate**, *Keio University*, Yokohama Japan.

While completing my Ph.D, I was also working as a Research Associate in "The 21st Century COE (Centre Of Excellence) Programme regarding Optical and Electronic Device Technology for Access Network" at Keio University. My key responsibilities were: to perform research in my field, attend a weekly meeting, give a presentation about my research progress every half a year. In 2007, I received a "Certificate of Distinguished Activity" from the programme.

2000–2005 **Teaching Assistant**, *Keio University*, Yokohama Japan.

While I was studying at graduate school, I was working as a Teaching Assistant for two classes for undergraduates: a) design, implement and investigate a simple analogue filter circuit, b) "circuits and systems".
My main responsibilities included:
○ Support students in practical tasks and help them to write a report to the lecturer.
○ Answer any questions related to signal processing from students to help them to get better understanding.
○ Support lecturers to mark exam.

Professional Activities

Membership
○ Senior Member of IEEE, Signal Processing Society Member
○ Member of ASJ (Acoustical Society of Japan)
○ Member of ASNZ (Acoustical Society of New Zealand)

Committee
○ IEEE New Zealand South Section Committee Member – University of Canterbury Student Branch Activities Coordinator (2013–2014)
○ IEEE New Zealand North Section Committee Member – Signal Processing and Information Theory Chapter Representative (2015–)
○ IEEE New Zealand Signal Processing and Information Theory Chapter, Vice Chapter Chair (2015), Chair (2016–)
○ IEEE Consumer Electronics Society, Sensors and Actuators Technical Committee, Member (2021–)

Conference Activities
○ Organisation committee member of the Noise and Vibration Emerging Methods, the 7th conference (NOVEM2023)
○ Committee member of the 16th International Workshop on Acoustic Signal Enhancement (IWAENC2018)
○ Technical Programme Committee of the 8th International Conference on Sensing Technology (ICST2014)
○ Session Chair of International Congress of Acoustics (ICA2010)
○ Session Vice-chair at the ASJ Meetings: 2010 Spring, 2009 Autumn, 2009 Spring, 2008 Autumn, 2005 Spring

Referee
- Reviewer for IEEE Transactions and Magazines
- Reviewer for EURASIP Journals
- Reviewer for Journal of Acoustic Society of America
- Reviewer for Acoustical Science and Technology (English Journal published from the Acoustical Society of Japan)
- Reviewer for Applied Acoustics
- Reviewer for IEICE Transactions
- Reviewer for Interspeech (2010–)

Talks

Jan 2023 **Seminar**, *NTT Communication Science Laboratories (Online)*, Kyoto, Japan.

Oct 2022 **Seminar**, *Sophia University*, Tokyo, Japan.

Dec 2021 **Overview session (Invited)**, *Audio Signal Processing for Unmanned Aerial Vehicles Audition*, Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC 2021), Tokyo, Japan/Online hybrid.

Sep 2021 **Seminar (Invited)**, *Acoustics Research and Education in New Zealand*, Acoustical Society of Japan, Online.

Nov 2020 **Seminar**, *IEEE NZ SP/IT Chapter*, Auckland, New Zealand.

Nov 2018 **Seminar**, *Sophia University*, Tokyo, Japan.

Nov 2018 **Seminar**, *University of Tokyo*, Tokyo, Japan.

Oct 2018 **Seminar**, *Orticon*, Copenhagen, Denmark.

Oct 2018 **Seminar**, *Denmark Technological University*, Copenhagen, Denmark.

Oct 2018 **Seminar**, *Imperial College London*, London, UK.

Sep 2016 **Key Note Talk (Invited)**, *Estimating Power Spectral Density for Acoustic Signal Enhancement – An Effective Approach for Practical Applications*, International Workshop on Acoustic Signal Enhancement (IWAENC2016), Xi'an, China.

Sep 2016 **Seminar**, *Xi'an Jiaotong University*, Xi'an, China.

Dec 2015 **Seminar**, *Nanyang Technological University*, Singapore.

Oct 2014 **Seminar**, *University of Auckland*, Auckland, New Zealand.

Jun 2014 **Seminar**, *Imperial College*, London, UK.

Jan 2014 **Seminar**, *Lincoln Agritech*, Lincoln, New Zealand.

Mar 2013 **Seminar**, *University of Canterbury*, Christchurch, New Zealand.

Sep 2012 **Seminar**, *Delft University of Technology*, Delft, Netherlands.

Aug 2010 **Seminar**, *University of South Wales*, Sydney, Australia.

Aug 2010 **Seminar**, *Royal Melbourne Institute of Technology*, Melbourne, Australia.

Awards

2016 **AUEA Emerging Researcher Award**, *Auckland University Engineering Association*.

2011 **Outstanding Performance Award on Paper Publication**, *Director of NTT Cyber Space Laboratories*, NTT Corporation.

2007 **Research and Development Incentive Award**, *Executive Director of NTT Cyber Communication Laboratory Group*, NTT Corporation.

2005 **Outstanding Performance Award**, *School of Integrated Design Engineering*, Keio University.

2005 **Best Paper Award**, *The 21st Century COE (Centre Of Excellence) Programme*, Keio University.

2000 **Best Bachelor Thesis Presentation Award**, *Department of System Design Engineering*, Keio University.

Funding/Prizes

2022 **Meta AR/VR Policy Research for the Asia Pacific Region**, *Meta Research*, 100,000 USD, Associate Investigator.
PI: Dr Justine Hui, University of Auckland

2020 **National Science Challenge: Science for Technological Innovation Seed Grant**, *Ministry of Business, Innovation and Employment*, 199,996 NZD, Principal Investigator.
Co-PI: Prof Stephen Marsland, Victoria University of Wellington

2020 **Catalyst: Seeding New Zealand - Japan Joint Research Project Programme**, *Royal Society of New Zealand*, 60,000 NZD, Principal Investigator.

2019 **Faculty Research Development Fund**, *Faculty of Engineering, University of Auckland*, 166,865 NZD, Principal Investigator.

2017 **National Science Challenge: Science for Technological Innovation Seed Grant**, *Ministry of Business, Innovation and Employment*, 200,000 NZD, Associate Investigator.
PI: Prof Stephen Marsland, Victoria University of Wellington

2017 **Faculty Research Development Fund**, *Faculty of Engineering, University of Auckland*, 160,000 NZD, Associate Investigator.
PI: Dr Kevin Wang, University of Auckland

2015 **Finalist (among 6) for the C-prize Challenge**, *Callaghan Innovation*, 10,000 NZD, (jointly awarded with Dr Michael Kingan and Dr Karl Stol both from the University of Auckland).

2015 **Faculty Research Development Fund**, *Faculty of Engineering, University of Auckland*, 30,000 NZD, Principal Investigator.

2015 **Seed grant**, *Faculty of Engineering, University of Auckland*, 10,000 NZD, Associate Investigator.
PI: Dr Kevin Wang, University of Auckland

| 2014 | **Seed grant**, *Faculty of Engineering, University of Auckland*, 10,000 NZD, Associate Investigator. |
| | PI: Dr Catherine Watson, University of Auckland |

Languages

English	Full Professional Proficiency	*IELTS overall 7.5 (2011)*
Japanese	Native Speaker	
German	Elementary Proficiency	

Computer skills

| Technical Programming | Matlab, C/C++ |
| Administration | MS-Word, Excel, PowerPoint, LaTeX |

Hobbies

Music
- Playing mandolin: Undertook a role of the leading player in various mandolin orchestras.
- Listening to classical music

Sports
- Tramping
- Golf
- Squash
- Skiing

Publications

Book Chapters

[1] **Y. Hioka**, M. Yen, R. McKay, and M. Kingan. Clean audio recording using unmanned aerial vehicles. In Ahmad Taher Azar and Sundarapandian Vaidyanathan, editors, *Unmanned Aerial Systems*, pages 175–202. 2021.

[2] Rohith Mars, Vaninirappuputhenpurayil Gopalan Reju, Andy W.H. Khong, Yusuke Hioka, and Kenta Niwa. Chapter 12 - beamforming techniques using microphone arrays. In Rama Chellappa and Sergios Theodoridis, editors, *Academic Press Library in Signal Processing, Volume 7*, pages 585 – 612. Academic Press, 2018.

[3] M. Kishida and **Y. Hioka**. Circularly moving sensor for use of modulation effect - carousel. In Alex Mason, Subhas Chandra Mukhopadhyay, and Krishanthi Padmarani Jayasundera, editors, *Sensing Technology: Current Status and Future Trends IV*, pages 217–234. 2015.

Invited Articles

[1] **Y. Hioka** and K. Niwa. Estimating power spectral density for spatial audio signal separation: An effective approach for practical applications. *The Acoustical Science & Technology*, 38, 2017.

[2] A. Kataoka, K. Kobayashi, and **Y. Hioka**. Microphone array technologies for hands-free speech communications. *The Journal of The Institute of Electronics, Information and Communication Engineers (IEICE)*, 2008.

Journal Papers

[1] C.T.J. Hui, H. Masuda, **Y. Hioka**, and C.I. Watson. Word identification of New Zealand English by native Japanese listeners with and without exposure to New Zealand English. *Acoustical Science and Techonology*, 44(1):29–32, 2023.

[2] H. Masuda, **Y. Hioka**, C.T.J. Hui, James J., and C.I. Watson. Performance evaluation of speech masking design among listeners with varying language backgrounds. *Applied Acoustics*, 201:109122, 2022.

[3] C.T.J. Hui, **Y. Hioka**, H. Masuda, and C.I. Watson. Differences between listeners with early and late immersion age in spatial release from masking in various acoustic environments. *Speech Communication*, 139:51–61, 2022.

[4] B. Yen, **Y. Hioka**, G. Schmid, and B. Mace. Multi-sensory sound source enhancement for unmanned aerial vehicle recordings. *Applied Acoustics*, 189:108590, 2022.

[5] C.T.J. Hui, M. Kingan, **Y. Hioka**, G. Schmid, G. Dodd, K.N. Dirks, S. Edlin, S. Mascarenhas, and Y.M. Shim. Quantification of the

psychoacoustic effect of noise from small unmanned aerial vehicles. *International Journal of Environmental Research and Public Health*, 18(17):8893, 2021.

[6] C.T.J. Hui, E. Au, S. Xiao, **Y. Hioka**, H. Masuda, and C.I. Watson. Differences in speech intelligibility in noise between native and non-native listeners under Ambisonics-based sound reproduction system. *Applied Acoustics*, 184:108368, 2021.

[7] E. Osawa, C.T.J. Hui, **Y. Hioka**, and T. Arai. Effect of prior exposure on the perception of Japanese vowel length contrast in reverberation for nonnative listeners. *Speech Communication*, 134:1–11, 2021.

[8] C.T.J. Hui, M. Ikuta, M. Obata, **Y. Hioka**, and T. Arai. Spatially target adaptive speech masking - A pilot study on masking effect and annoyance -. *Applied Acoustics*, 182:108214, 2021.

[9] **Y. Hioka**, M. Kingan, and G. Dodd. The learning effect of an active-learning room-acoustics coursework. *Journal of the Acoustical Society of America*, 149:2465–2476, 2021.

[10] E. Au, S. Xiao, C.T.J. Hui, **Y. Hioka**, H. Masuda, and C. Watson. Speech intelligibility in noise with varying spatial acoustics under Ambisonics-based sound reproduction system. *Applied Acoustics*, 174:107707, 2021.

[11] B. Yen and **Y. Hioka**. Noise power spectral density scaled SNR response estimation with restricted range search for sound source localisation using unmanned aerial vehicles. *EURASIP Journal on Audio, Speech, and Music Processing*, 2020(13):1–26, 2020.

[12] **Y. Hioka**, J. James, and C.I. Watson. Masker design for real-time informational masking with mitigated annoyance. *Applied Acoustics*, 159:107073, February 2020.

[13] B. Ollivier, A. Pepperell, Z. Halstead, and **Y. Hioka**. Noise robust bird call localisation using the generalised cross-correlation in the wavelet domain. *Journal of the Acoustical Society of America*, 146:4650–4663, 2019.

[14] A. Pepperell, Z. Halstead, B. Ollivier, and **Y. Hioka**. Performance of sound source localisation for bird calls in native new zealand bush. *New Zealand Acoustics*, 32(2):15–24, 2019.

[15] **Y. Hioka**, M. Kingan, G. Schmid, R. McKay, and K. Stol. Design of an unmanned aerial vehicle mounted system for quiet audio recording. *Applied Acoustics*, 155:423–427, December 2019.

[16] K. Niwa, **Y. Hioka**, and K. Kobayashi. Microphone array source enhancement using subtractive PSD estimation model. *Applied Acoustics*, 143:239–249, January 2019.

[17] K. Niwa, **Y. Hioka**, and H. Uematsu. Efficient audio rendering using angular region-wise source enhancement for 360° video. *IEEE Transactions on Multimedia*, 20(11):2871–2881, November 2018.

[18] Y. Koizumi, K. Niwa, **Y. Hioka**, K. Kobayashi, and Y. Haneda. Dnn-based source enhancement to increase objective sound quality assessment score. *IEEE/ACM Transactions on Audio, Speech and Language Processing*, 26(10):1780–1792, October 2018.

[19] F. Del Prado, **Y. Hioka**, and C. Watson. The effect of speech enhancement in voice adaptation when building synthetic voices. *Acoustics Science and Technology*, 39(2):150–153, March 2018.

[20] Y. Koizumi, K. Niwa, **Y. Hioka**, K. Kobayashi, and H. Ohmuro. Informative acoustic feature selection to maximize mutual information for collecting target sources. *IEEE Transactions on Audio, Speech, and Language Processing*, 25(4):768–779, April 2017.

[21] T. Kawase, K. Niwa, **Y. Hioka**, and K. Kobayashi. Automatic parameter switching of noise reduction for speech recognition. *Journal of Signal Processing*, 21(2):63–71, Mar 2017.

[22] M. Fukui, S. Shimauchi, **Y. Hioka**, A. Nakagawa, and Y. Haneda. Acoustic echo and noise canceller for personal hands-free video ip phone. *IEEE Transactions on Consumer Electronics*, 62(4):1–1, Nov 2016.

[23] K. Niwa, **Y. Hioka**, and K. Kobayashi. Optimal microphone array observation for clear recording of distant sound sources. *IEEE Transactions on Audio, Speech, and Language Processing*, 24(10):1785–1795, Dec 2016.

[24] **Y. Hioka**, J. Tang, and J. Wan. Effect of adding artificial reverberation to speech-like masking sound. *Applied Acoustics*, 114:171–178, Dec 2016.

[25] A.C. Lapthron, S. Pandey, and **Y. Hioka**. Is there a problem with ncea physics 3.6? an electrical engineering perspective. *New Zealand Science Teacher*, 134:34–38, Nov 2015.

[26] M. Fukui, K. Kobayashi, S. Shimauchi, **Y. Hioka**, and H. Ohmuro. Low-complexity dereverberation for hands-free audio conferencing unit. *IEEE Transactions on Consumer Electronics*, 61(4):539–545, Nov 2015.

[27] G. Pablo Nava, H.D. Nguyen, **Y. Hioka**, Y. Kamamoto, T. Sato, Y. Shiraki, and T Moriya. Multiple-speech-source localization using advanced histogram mapping method. *Acoustical Science and Technology*, 36(6):489–499, Nov 2015.

[28] M. Fukui, S. Shimauchi, **Y. Hioka**, A. Nakagawa, and Y. Haneda. Double-talk robust acoustic echo cancellation for cd-quality hands-free

videoconferencing system. *IEEE Transactions on Consumer Electronics*, 60(3):468–475, Nov 2014.

[29] M. Fukui, S. Shimauchi, K. Kobayashi, **Y. Hioka**, and H. Ohmuro. Acoustic echo canceller software for voip hands-free application on smartphone and tablet devices. *IEEE Transactions on Consumer Electronics*, 60(3):461–467, Nov 2014.

[30] M. Fukui, S. Shimauchi, **Y. Hioka**, A. Nakagawa, Y. Haneda, H. Ohmuro, and A. Kataoka. Wiener solution considering cross-spectral term between echo and near-end speech for acoustic echo reduction. *Acoustical Science and Technology*, 35(3):150–158, 2014.

[31] M. Fukui, S. Shimauchi, **Y. Hioka**, A. Nakagawa, Y. Haneda, H. Ohmuro, and A. Kataoka. Noise-power estimation based on ratio of stationary noise to input signal for noise reduction. *Jounal of Signal Process*, 18(1):17–28, Jan 2014.

[32] K. Niwa, S. Esaki, **Y. Hioka**, T. Nishino, and K. Takeda. An estimation method of distance between each sound source and microphone array utilizing eigenvalue distribution of spatial correlation matrix. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, 97-A(2):68–76, Feb 2014.

[33] **Y. Hioka**, K. Furuya, K. Kobayashi, K. Niwa, and Y. Haneda. Underdetermined sound source separation using power spectrum density estimated by combination of directivity gain. *IEEE Transactions on Audio, Speech, and Language Processing*, 21(6):1240–1250, Jun 2013.

[34] K. Niwa, **Y. Hioka**, K. Furuya, and Y. Haneda. Diffused sensing for sharp directive beamforming. *IEEE Transactions on Audio, Speech, and Language Processing*, 21(11):2346 – 2355, Nov 2013.

[35] K. Niwa, **Y. Hioka**, S. Sakauchi, K. Furuya, and Y. Haneda. An estimation method of sound source orientation using eigenspace variation of spatial correlation matrix. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E96-A(9):1831–1839, Sep 2013.

[36] K. Niwa, **Y. Hioka**, S. Sakauchi, K. Furuya, and Y. Haneda. Sharp directive beamforming using microphone array and planar reflector. *Acoustical Science and Technology*, 34(4):253–262, Jul 2013.

[37] M. Fukui, S. Shimauchi, **Y. Hioka**, Y. Haneda, H. Ohmuro, and A. Kataoka. Fast and accurate acoustic-coupling level estimation for echo reduction. *Jounal of Signal Process*, 17(5):167–177, Sep 2013.

[38] **Y. Hioka**, K. Furuya, K. Kobayashi, S. Sakauchi, and Y. Haneda. Angular region-wise speech enhancement for hands-free speakerphone.

IEEE Transactions on Consumer Electronics, 58(4):1403–1410, Nov 2012.

[39] **Y. Hioka**, K. Niwa, S. Sakauchi, K. Furuya, and Y. Haneda. Estimating direct-to-reverberant energy ratio using D/R spatial correlation matrix model. *IEEE Transactions on Audio, Speech, and Language Processing*, 19(8):2374–2384, Nov 2011.

[40] **Y. Hioka**, K. Furuya, Y. Haneda, and A. Kataoka. Improving power spectra estimation in 2-dimensional areas using number of active sound sources. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E94-A(1):273–281, Jan 2011.

[41] **Y. Hioka**, M. Matsuo, and N. Hamada. Multiple-speech-source localization using advanced histogram mapping method. *Acoustical Science and Technology*, 30(2):143–146, Mar 2009.

[42] **Y. Hioka**, M. Okamoto, K. Kobayashi, Y. Haneda, and A. Kataoka. A display-mounted high-quality stereo microphone array for high-definition videophone system. *IEEE Transactions on Consumer Electronics*, 54(2):778–786, May 2008.

[43] **Y. Hioka**, K. Kobayashi, Furuya K., and A. Kataoka. Enhancement of sound sources located within a particular area using a pair of small microphone arrays. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E91-A(2):561–574, Feb 2008.

[44] **Y. Hioka** and N. Hamada. Tracking of speaker direction by integrated use of microphone pairs in equilateral-triangle. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E88-A(3):633–641, Mar 2005.

[45] **Y. Hioka** and N. Hamada. DOA estimation of speech signal using microphones located at vertices of equilateral triangle. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E87-A(3):559–566, Mar 2004.

[46] **Y. Hioka** and N. Hamada. Estimation of azimuth and elevation DOA using microphones located at apices of regular tetrahedron. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E87-A(8):2058–2062, Aug 2004.

[47] **Y. Hioka** and N. Hamada. Voice activity detection with array signal processing in the wavelet domain. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, E86-A(11):2802–2811, Nov 2003.

[48] **Y. Hioka**, Y. Koizumi, and N. Hamada. Improvement of DOA estimation using virtually generated multichannel data from two-channel microphone array. *Jounal of Signal Process*, 7(1):105–109, 2003.

[49] K. Suzuki, **Y. Hioka**, and N. Hamada. Adding virtual waves algorithm using eigenvectors of the signal covariance matrix. *IEICE transactions on fundamentals of electronics, communications and computer sciences*, J86-A(12):1520–1523, Dec 2003. (in Japanese).

Peer-reviewed Conference Proceedings

[1] Y. Tao, Y. Lu, and **Y. Hioka**. Experimental energy consumption analysis of neural network model compression methods on microcontrollers with applications in bird call classification. In *9th IEEE Asia-Pacific Conference on Computer Science and Data Engineering (IEEE CSDE 2022)*, Dec 2022.

[2] N. Eng, **Y. Hioka**, and C. Watson. Using perceptual quality features in the design of the loss function for speech enhancement. In *Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC) 2022*, Nov 2022.

[3] B. Yen, J. Prins, G. Schmid, **Y. Hioka**, S. Ellis, and S. Marsland. Design of a low-cost passive acoustic monitoring system for animal localisation from calls. In *IROS 2022*, Oct 2022.

[4] N. Eng, C.T.J. Hui, **Y. Hioka**, and C. Watson. Comparing speech enhancement techniques for voice adaptation-based speech synthesis. In *Interspeech 2021*, Aug 2021.

[5] B. Yen, **Y. Hioka**, and B. Mace. Source enhancement for unmanned aerial vehicle recording using multi-sensory information. In *Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC) 2020*, pages 850–857, Dec 2020.

[6] **Y. Hioka**, K. Kobayashi, and K. Niwa. Improving speech intelligibility using microphones on behind the ear hearing aids. In *IEEE 21st International Workshop on Multimedia Signal Processing (MMSP)*, Sep 2019.

[7] H. Masuda, **Y. Hioka**, J. James, and C. Watson. Protecting speech privacy from native/non-nativelisteners - effect of masker type. In *International Congress on Phonetic Sciences (ICPhS)*, pages 3070–3074, Aug 2019.

[8] **Y. Hioka**, R. Drage, T. Boag, and E. Everall. Direction of arrival estimation using a circularly moving microphone. In *16th International Workshop on Acoustic Signal Enhancement (IWAENC)*, pages 91–95, Sep 2018.

[9] B. Yen, **Y. Hioka**, and B Mace. Improving power spectral density estimation of unmanned aerial vehicle rotor noise by learning from non-acoustic information. In *16th International Workshop on Acoustic Signal Enhancement (IWAENC)*, pages 545–549, Sep 2018.

[10] B. Yen, **Y. Hioka**, and B Mace. Estimating power spectral density of unmanned aerial vehicle rotor noise using multisensory information. In *26th European Signal Processing Conference (EUSIPCO 2018)*, pages 2434–2438, Sep 2018.

[11] Y. Koizumi, N. Harada, Y. Haneda, **Y. Hioka**, and K Kobayashi. End-to-end sound source enhancement using deep neural network in the modified discrete cosine transform domain. In *2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 706–710, Apr 2018.

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