TAISHI NAKASHIMA

Assistant Professor at Tokyo Metropolitan University

@ taishi@ieee.org   ● Tokyo, Japan   ● https://taishi.org   𝕏 @tai_shi_   in taishi-n   ○ taishi-n

WORK EXPERIENCE

Assistant Professor
Tokyo Metropolitan University

📅 Apr. 2024 – Present   ● Tokyo, Japan

DC1 Research Fellow
Japan Society for the Promotion of Science

📅 Apr. 2021 – Mar. 2024   ● Tokyo, Japan

- One of the most competitive research grants for Ph.D. student in Japan

Research internship
LINE Corporation

📅 Aug. 2020 – Oct. 2020   ● Tokyo, Japan

- Research about joint optimization of blind source separation and dereverberation

EDUCATION

Ph.D. in Computer Science
Department of Computer Science, Graduate School of Systems Design, Tokyo Metropolitan University

📅 Apr. 2021 – Mar. 2024   ● Tokyo, Japan

Supervisor: Prof. Nobutaka Ono Thesis title: Fast Online Blind Source Separation Adapting to Source and Microphone Movements

M.Sc. in Computer Science
Department of Computer Science, Graduate School of Systems Design, Tokyo Metropolitan University

📅 Apr. 2019 – Mar. 2021   ● Tokyo, Japan

Supervisor: Prof. Nobutaka Ono

B.Sc. in Eng.
Division of Intelligent Systems Science Course, Department of System Science, School of Engineering Science, Osaka University

📅 Apr. 2017 – Mar. 2019   ● Osaka, Japan

Supervisor: Prof. Toshimitsu Ushio

RESEARCH AREA

Blind source separation   Dereverberation   Array signal processing   Speech signal processing   Acoustic signal processing

SKILLS

Languages

Japanese   ●●●●●

Korean   ●●●●◐

English   ●●●●○

Programming

Python   ●●●●●

Matlab   ●●●●○

C/C++   ●●●◐○

FELLOWSHIP

Research Fellowship for Young Scientists DC1
Japan Society for the Promotion of Science

📅 Apr. 2021 – Mar. 2024   ● Tokyo, Japan

- Project Number: 22KJ2548
- HP: https://kaken.nii.ac.jp/en/grant/KAKENHI-PROJECT-22KJ2548/

AWARDS

🏆 **ICASSP 2023 Top 3% Paper Recognition**
Jun. 2023

🏆 **IEEE SPS Japan Student Conference Paper Award**
Jan. 2023

🏆 **Student Presentation Award, Acoustical Society of Japan (ASJ)**
Mar. 2022

ACADEMIC ACTIVITIES

Acoustical Society of Japan (ASJ) Student and Young Researchers Forum organizing member

📅 Apr. 2020 – Ongoing

- Maintenance website (http://asj-fresh.acoustics.jp)

MEMBERSHIPS

- Acoustical Society of Japan (ASJ)
- IEEE Signal Processing Society (SPS)

SELECTED PUBLICATIONS

See my homepage for full-list.

📄 Journal Papers

[1] T. Nakashima and N. Ono, "Repeated update of demixing vectors in independent low-rank matrix analysis for better separation," *APSIPA Transactions on Signal and Information Processing*, vol. 12, no. 3, 2023.

[2] T. Nakashima, Y. Wakabayashi, and N. Ono, "Self-rotation-robust online independent vector analysis with sound field interpolation on circular microphone array," *APSIPA Transactions on Signal and Information Processing*, vol. 13, no. 1, 2024.

🌐 Conference Proceedings

[3] T. Nakashima, R. Scheibler, Y. Wakabayashi, and N. Ono, "Performance evaluation of independent low-rank matrix analysis for short signals," in *Proc. Forum Acusticum*, Apr. 2020, pp. 787–790.

[4] T. Nakashima, R. Scheibler, Y. Wakabayashi, and N. Ono, "Faster independent low-rank matrix analysis with pairwise updates of demixing vectors," in *Proc. EUSIPCO*, Jan. 2021, pp. 301–305.

[5] T. Nakashima, R. Scheibler, M. Togami, and N. Ono, "Joint dereverberation and separation with iterative source steering," in *Proc. ICASSP*, Jun. 2021, pp. 216–220.

[6] T. Nakashima and N. Ono, "Inverse-free online blind source separation based on independent vector analysis with flexible iterative source steering," in *Proc. APSIPA*, Dec. 2022, pp. 750–754.

[7] T. Nakashima, R. Ikeshita, N. Ono, S. Araki, and T. Nakatani, "Fast online source steering algorithm for tracking single moving source using online independent vector analysis," in *Proc. ICASSP*, Jun. 2023.

👥 Co-author

[8] K. Kazama, T. Nakashima, and N. Ono, "Measurement of relative transfer function for own voice in head-mounted microphone array," in *Proc. APSIPA*, 2024, pp. 1–5.

[9] Y. Takeuchi, T. Nakashima, N. Ono, T. Takazawa, S. Shimanoe, and Y. Tsuchiya, "Experimental evaluation of speech enhancement for in-car environment using blind source separation and DNN-based noise suppression," in *Proc. APSIPA*, 2024, pp. 1–6.

[10] Y. Kuriki, T. Nakashima, and N. Ono, "Direct update of back-projected demixing matrices in blind source separation," in *Proc. EUSIPCO*, 2024, pp. 922–926.

[11] Y. Nakamura, N. Ono, T. Nakashima, and R. Miyazaki, "Unaliasing of recorded signals based on blind source separation," in *Proc. EUSIPCO*, Sep. 2023.

[12] S. Yamaji, T. Nakashima, N. Ono, L. Li, and H. Kameoka, "Encoder re-training with mixture signals on FastMVAE method," in *Proc. APSIPA*, Oct. 2022, pp. 705–709.

[13] Y. Kuriki, T. Nakashima, K. Yamaoka, N. Ueno, N. Ono, W. Yukoh, N. Ono, and R. Sato, "Efficient low-latency convolution with uniform filter partition and its evaluation on real-time blind source separation," in *Proc. APSIPA*, Oct. 2022, pp. 776–770.

[14] H. Nammoku, K. Yamaoka, T. Nakashima, Y. Wakabayashi, and N. Ono, "Analysis and source separation of overlapping speech using corpus of everyday japanese conversation," in *Proceedings of the 24th international congress on acoustics (ICA)*, Oct. 2022, pp. ABS–0870.

[15] K. Mogi, T. Nakashima, K. Yamaoka, Y. Wakabayashi, and N. Ono, "Source selection using multiple directions of arrival estimation based on blind source separation," in *RISP International Workshop on Nonlinear Circuits, Communications and Signal Processing (NCSP)*, Mar. 2022, pp. 253–256.

[16] G. Lian, Y. Wakabayashi, T. Nakashima, and N. Ono, "Self-rotation angle estimation of circular microphone array based on sound field interpolation," in *Proc. APSIPA*, Dec. 2021, pp. 1016–1020.

[17] Y. Masuyama, K. Yamaoka, Y. Kinoshita, T. Nakashima, and N. Ono, "Causal and relaxed-distortionless response beamforming for online target source extraction," *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 32, pp. 310–324, 2024.

[18] K. Yamaoka, T. Nakashima, Y. Wakabayashi, and N. Ono, "Minimum-spanning-tree-based time delay estimation robust to outliers," *IEEE Access*, vol. 11, pp. 121 284–121 294, 2023.

[19] N. Kuze, T. Nakashima, and T. Ushio, "Anti-jamming mobile control using QoS-based reinforcement learning," *IEICE Communications Express*, vol. 8, no. 12, pp. 501–506, 2019.