Tomohiko Nakamura

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http://tomohikonakamura.github.io/Tomohiko-Nakamura/

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Research Interests

Audio signal processing, music signal processing, machine learning and image processing.

Education

Ph.D. degree in Information Science and Technology
Graduate School of Information Science and Technology, The University of Tokyo, Japan — *Mar. 2016*

M.S. degree in Information Science and Technology
Graduate School of Information Science and Technology, The University of Tokyo, Japan — *Mar. 2013*

B.S. degree in Engineering
Faculty of Engineering, The University of Tokyo, Japan — *Mar. 2011*

Work Experience

Project Research Associate
Graduate School of Information Science and Technology, The University of Tokyo, Japan — *Sept. 2019–**Present***

Researcher
Intelligent Systems Laboratory, SECOM, Japan — *Apr. 2016–Aug. 2019*

Research Fellow (DC2)
Japan Society for the Promotion of Science (JSPS), Japan — *Apr. 2015–Mar. 2016*

Skills

- Languages: Japanese (native) and English (basic)
- Programming: Python, C/C++, Matlab, Javascript, HTML, Go

Funds

Grant-in-Aid for JSPS Fellows (Grant No. 15J09992) — **Research representative**
Japan Society of the Promotion of Science (JSPS) — *Apr. 2015–Mar. 2016*

Research Fellowship for Young Scientists (DC2)
Japan Society of the Promotion of Science (JSPS) — *Apr. 2015–Mar. 2016*

Grants for Researchers Attending International Conferences
The Tateishi Science and Technology Foundation — *Oct. 2014.*

Grants for Researchers Attending International Conferences
The Hara Research Foundation — *Sept. 2014.*

Grants for Researchers Attending International Conferences
The Telecommunications Advancement Foundation — *Aug. 2013.*

Publications

Journal Papers

[1] Tomohiko Nakamura, Eita Nakamura, Shigeki Sagayama, "Real-Time Audio-to-Score Alignment of Music Performances Containing Errors and Arbitrary Repeats and Skips," *IEEE/ACM Transactions on Audio, Speech and Language Processing*, vol. 24, issue 2, pp. 329–339, Feb. 2016.

[2] Tomohiko Nakamura, Yutaka Hori and Shinji Hara, "Hierarchical Modeling and Local Stability Analysis for Repressilators Coupled by Quorum Sensing," *SICE Journal of Control, Measurement, and System Integration*, vol. 7, no. 3, pp. 133-140, May, 2014. **[Best Paper Award (Takeda Award) from the Society of Instrument and Control Engineers]**

[3] Eita Nakamura, Tomohiko Nakamura, Yasuyuki Saito, Nobutaka Ono and Shigeki Sagayama, "Outer-Product Type Hidden Markov Model and Polyphonic MIDI Score Following," *Journal of New Music Research*, vol. 43, issue 2, pp. 183–201, 2014.

Peer-Reviewed International Conferences

[1] Tomohiko Nakamura and Hirokazu Kameoka, "Shifted and Convolutive Source-Filter Non-Negative Matrix Factorization for Monaural Audio Source Separation," *Proc. 41st IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP2016)*, pp. 489–493, Mar. 2016.

[2] Tomohiko Nakamura and Hirokazu Kameoka, "L_p-Norm Non-Negative Matrix Factorization and Its Application to Singing Voice Enhancement," *Proc. 40th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP2015)*, pp. 2115–2119, Apr. 2015.

[3] Tomohiko Nakamura, Kotaro Shikata, Norihiro Takamune and Hirokazu Kameoka, "Harmonic-Temporal Factor Decomposition Incorporating Music Prior Information for Informed Monaural Source Separation," *Proc. 15th International Society for Music Information Retrieval Conference (ISMIR2014)*, pp. 623–628, Oct. 2014.

[4] Takuya Higuchi, Hirofumi Takeda, Tomohiko Nakamura, Hirokazu Kameoka, "A Unified Approach for Underdetermined Blind Signal Separation and Source Activity Detection by Multichannel Factorial Hidden Markov Models," *Proc. 15th Annual Conference of the International Speech Communication Association (Interspeech2014)*, pp. 850–854, Sept. 2014.

[5] Tomohiko Nakamura and Hirokazu Kameoka, "Fast Signal Reconstruction from Magnitude Spectrogram of Continuous Wavelet Transform based on Spectrogram Consistency," *Proc. 17th International Conference on Digital Audio Effects (DAFx-14)*, pp. 129–135, Sept. 2014.

[6] Tomohiko Nakamura, Hirokazu Kameoka, Kazuyoshi Yoshii and Masataka Goto, "Timbre Replacement of Harmonic and Drum Components for Music Audio Signals," *Proc. 2014 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP2014)*, pp. 7520–7524, May, 2014.

[7] Takuya Higuchi, Norihiro Takamune, Tomohiko Nakamura and Hirokazu Kameoka, "Underdetermined Blind Separation and Tracking of Moving Sources based on DOA-HMM," *Proc. 2014 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP2014)*, pp. 3215–3219, May, 2014.

[8] Tomohiko Nakamura, Eita Nakamura and Shigeki Sagayama, "Acoustic Score Following to Musical Performance with Errors and Arbitrary Repeats and Skips for Automatic Accompaniment," *Proc. Sound and Music Computing Conference (SMC2013)*, pp. 299–304, Aug. 2013.

[9] Masahiro Nakano, Jonathan Le Roux, Hirokazu Kameoka, Tomohiko Nakamura, Nobutaka Ono and Shigeki Sagayama, "Bayesian Nonparametric Spectrogram Modeling Based on Infinite Factorial Infinite Hidden Markov Model," *Proc. 2011 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA2011)*, pp. 325-328, Oct. 2011.

[10] Tomohiko Nakamura, Shinji Hara and Yutaka Hori, "Local Stability Analysis for a class of Quorum-Sensing Networks with Cyclic Gene Regulatory Networks," *Proc. SICE Annual Conference*, pp. 2111–2116, Sept. 2011. **[SICE Annual Conference 2011 International Award, SICE Annual Conference 2011 Finalist of Young Author Award]**

Ph.D. Thesis

[1] Tomohiko Nakamura, "Source-Filter Representation and Phase Estimation in Continuous Wavelet Transform Domain for Monaural Music Audio Editing," Ph.D. Thesis, The University of Tokyo, Mar. 2016. **[Dean's Award, IPSJ MUS recommended Ph.D thesis]**

Patents

[1] Tomohiko Nakamura, Tadahiko Ito and Masaki Shimaoka, "Certificate Management Device." Japanese Patent Application No. 2019-57755.

[2] Tomohiko Nakamura and Hirokazu Kameoka, "Vocal Tract Spectrum Estimation Device, Method and Program." Japanese Patent Application No. 2017-151188, Publication No. 6420781, issued Oct. 19, 2018.

Awards

1. IPSJ MUS Recommended Ph.D. Thesis, Aug. 2016.
2. Dean's Award from Graduate School of Information Science and Technology, The University of Tokyo, Mar. 2016.
3. Best Paper Award (Takeda Award) from SICE, Oct. 2015.
4. IPSJ Yamashita SIG Research Award, Mar. 2015.
5. Best Poster Award from Otogaku Symposium 2015, May 2015.
6. Student Presentation Award from ASJ, Mar. 2014.
7. IPSJ Certificate of Excellent Master's Thesis, Mar. 2013.
8. Student Encouragement Award of IPSJ National Convention, Mar. 2013.
9. SICE Annual Conference 2011 International Award, Sept. 2011.
10. SICE Annual Conference 2011 Finalist of Young Author Award, Sept. 2011.