

# Tomohiko Nakamura

Room #140, Eng. bldg. #6, 7-3-1 Hongo, Bunkyo, Tokyo 113-8656, Japan

🌐 <http://tomohikonakamura.github.io/Tomohiko-Nakamura/>

✉ [tomohiko.nakamura.jp@ieee.org](mailto:tomohiko.nakamura.jp@ieee.org)

## 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

## Competitive Funds

---

### Grant-in-Aid for JSPS Fellows (Grant No. 15J09992)

*Japan Society of the Promotion of Science (JSPS)*

**Research representative**

*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 Convolutional 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, Graduate School of Information Science and Technology, The University of Tokyo, Mar. 2015.
- 3. Best Paper Award (Takeda Award) from the Society of Instrument and Control Engineers, Oct. 2015.
- 4. IPSJ Yamashita SIG Research Award, Mar. 2015.
- 5. Best Poster Award, IPSJ Otogaku Symposium 2015, May 2015.
- 6. Student Presentation Award from Acoustical Society of Japan, Mar. 2014.
- 7. IPSJ Certificate of excellent Master's Thesis, Mar. 2015.
- 8. Student Encouragement Award of IPSJ National Convention, Mar. 2014.
- 9. SICE Annual Conference 2011 International Award, Sept. 2011.
- 10. SICE Annual Conference 2011 Finalist of Young Author Award, Sept. 2011.