

# People of NTT R&D

The title of “NTT Fellow” is reserved for those individuals whose research results and performance have brought them distinction and who are extremely highly regarded both within and outside NTT.

## Dr. Tatsuaki Okamoto

Secure Platform Labs.

### Research Subject

Cryptography

### Awards

2017 RSA Conference Award for Excellence in the Field of Mathematics

2015 IACR Fellow

2009 IACR Distinguished Lecturer

2007 Certicom ECC Technology Award

### Professional Services / Visiting Positions

Director of IACR (1998-2000)

Visiting Assistant Professor of Univ. of Waterloo (Canada) (1989-1990)

Visiting Researcher of Bell Labs (USA) (1994-1995)

### Selected Papers

“A Fast Signature Scheme Based on Congruential Polynomial Operations,” IEEE Transactions on Information Theory, Vol.IT-36, No.1, pp.47-53 (1990).

“Reducing Elliptic Curve Logarithms to Logarithms in a Finite Field,” (with A. Menezes and S. Vanstone), IEEE Transactions on Information Theory, Vol.IT-39, No.5 (1993).

“On Relationships between Statistical Zero-Knowledge Proofs,” Journal of Comput. and System Sciences, 60, pp.47-108 (1999).

“Secure Integration of Asymmetric and Symmetric Encryption Schemes,” (with E. Fujisaki), J. Cryptology Vol. 26, No.1, pp. 80-101, (2013).

“Provably Secure and Practical Identification Schemes and Corresponding Signature Schemes,” the proceedings of Crypto'92, LNCS, Springer-Verlag, pp.31-53 (1993)

“Fully Secure Functional Encryption with General Relations from the Decisional Linear Assumption,” (with K. Takashima) the proceedings of CRYPTO 2010, LNCS 6223, Springer-Verlag, pp. 191-208, (2010).



**Dr. Takehiro Moriya**

Moriya Research Laboratory, Communication Science Labs.

**Research Subject**

Speech/audio signal encoding

**Awards**

2016 APSIPA Industrial Distinguished Leader

2016 IEEE James L. Flanagan Speech and Audio Processing Award

2003 IEEE Fellow

**Professional Services**

IEEE SP society Fellow evaluation committee member (2008-2010)

Senior Editorial Board member of IEEE Journal for Selected Topics in Signal Processing (2013-2015)

IEEE Signal Processing Society Speech Technology Committee (2015-)

**Selected Papers**

Sugiura, R. ; Kamamoto, Y. ; Harada, N. ; Kameoka, H. ; Moriya, T., "Optimal Coding of Generalized-Gaussian-Distributed Frequency Spectra for Low-Delay Audio Coder With Powered All-Pole Spectrum Estimation," IEEE/ACM Trans. on Audio, Speech, and Language Processing, Vol. 23, No. 8, pp. 1309 - 1321, 2015.

Nava, G.P.; Hoang Duy Nguyen; Kamamoto, Y.; Sato, T.G.; Shiraki, Y.; Harada, N.; Moriya, T., "A High-Speed Camera-Based Approach to Massive Sound Sensing With Optical Wireless Acoustic Sensors," IEEE Trans. on Computational Imaging, Vol. 1, Issue 2, pp. 126 - 139, 2015

R. Salami, C. Laflamme, J.P. Adoul, A. Kataoka, S. Hayashi, T. Moriya, C. Lamblin, D. Massaloux, S. Proust, P. Kroon, and Y. Shoham, "Design and Description of CS-ACELP: A Toll Quality 8kb/s Speech Coder," IEEE Trans. Speech and Audio Processing, Vol. 6, No. 2, pp. 116 - 130, 1998.

N. Phamdo, N. Farvardin and T. Moriya, "A Unified Approach to Tree-Structured and Multi-Stage Vector Quantization for Noisy Channels," IEEE Trans. IT, vol. 39, No. 3, pp. 835-850, 1993.

T. Moriya, "Two-channel Conjugate Vector Quantizer for Noisy Channel Speech Coding," IEEE, JSAC, vol. 10, No. 5, pp. 866-874, 1992.

T. Moriya and M. Honda, "Transform Coding of Speech Using a Weighted Vector Quantizer," IEEE, JSAC, vol. 6, No. 2, pp. 425-431, 1988.



**Dr. Naonori Ueda**

Ueda Research Laboratory, Communication Science Labs.

**Research Subject**

Big data analysis & statistical machine learning

**Awards**

2017 Fall APSIPA Industrial Distinguished Leader  
 2010 SIGKDD Best Research Paper Award Honorable Mention  
 2009 Best Paper Award, ICONIP (Intl. Conf. on Neural Information Processing)

**Professional Services**

Area Chair, NIPS (2015)  
 Program Committee , ACM SIG KDD(2010-), AAI(2015-),MLSP(2017)  
 Senior Program Committee, ICML (2007),IJCAI(2018)

**Selected Papers**

Shiguro, K., Sato, I., and Ueda, N., "Averaged collapsed variational Bayes inference," Journal of Machine Learning Research (JMLR), Volume 18, Number 1, pp.1--29, 2017.

Watanabe, S., Minami, Y., Nakamura, A., and Ueda, N., "Variational bayesian estimation and clustering for speech recognition," IEEE Transaction on Speech and Audio Processing, Vol. 12, pp. 365-381, 2004.

Ueda, N. and Ghahramani, Z., "Bayesian model search for mixture models based on optimizing variational bounds," Neural Networks, Vol.15, No.10, pp. 1223-1241, 2002.

Ueda, N., Nakano, R., Ghahramani, Z., and Hinton, G. E., "SMEM algorithm for mixture models," Neural Computation, Vol. 12, No. 9, pp. 2109-2128, 2000.

Ueda, N. and Nakano, R., "Deterministic annealing EM Algorithm," Neural Networks, Vol. 11, No. 2, pp. 271-282, (1998).

Ueda, N. and Nakano, R., "A new competitive learning approach based on an equidistortion principle for designing optimal vector quantizers," Neural Networks, Vol.7, No.8, pp. 1211-1227, 1994.



## **Dr. Makio Kashino**

Project Manager, Sports Brain Science Project, Communication Science Labs.

### Research Subject

Human information science, cognitive neuroscience

### Professional Services / Visiting Positions

Specially Appointed Professor, School of Engineering, Tokyo Institute of Technology (2016-present)

Visiting Professor, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology (2006-2016)

Visiting Professor, Dr. Daniel Pressnitzer Lab., Université Paris-Descartes (2008)

Visiting Scientist, Dr. Richard Warren Lab., University of Wisconsin (1992-1993)

### Selected Papers

Lin, I.F., Shirama, A., Kato, N., Kashino, M.: The singular nature of auditory and visual scene analysis in autism. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 2017 Feb 19;372(1714). pii: 20160115. doi: 10.1098/rstb.2016.0115.

Kondo, H.M., Pressnitzer, D., Toshima, I., Kashino, M.: Effects of self-motion on auditory scene analysis. *Proceedings of the National Academy of Sciences of the United States of America* 109 (17): 6775-6780, 2012. doi: 10.1073/pnas.1112852109.

Kashino, M., Kondo, H.M.: Functional brain networks underlying perceptual switching: auditory streaming and verbal transformations. *Philosophical Transactions of the Royal Society B: Biological Sciences* 367 (1591): 977-987, 2012. doi: 10.1098/rstb.2011.0370.

Fujisaki, W., Shimojo, S., Kashino, M., Nishida, S.: Recalibration of audio-visual simultaneity. *Nature Neuroscience* 7 (7): 773-778, 2004.

Kashino, M., Nishida, S.: Adaptation in sound localization revealed by auditory aftereffects. *Journal of the Acoustical Society of America*, 103 (6), 3597-3604, 1998.



## Dr. Shingo Tsukada

Basic Research Laboratories

### Research Subject

Medicine, Physiology, Biomedical interface & data analysis

### Visiting Positions

Visiting researcher, University of California at San Diego, U.S.A. (2003-2005)

### Selected Papers

Teshima, T. F., Nakashima, H.; Ueno, Y., Sasaki, S., Henderson, C. S. and Tsukada, S., "Cell Assembly in Self-foldable Multilayered Soft Micro-rolls," *Scientific Reports*, 7,17376 (2017).

Teshima, T., Nakashima, H., Kasai, N., Sasaki, S., Tanaka, A., Tsukada, S. and Sumitomo, K., "Mobile Silk Fibroin Electrode for Manipulation and Electrical Stimulation of Adherent Cells," *Advanced Functional Materials*, 26 (45), 8185-8193 (2016).

Tanaka, A., Tanaka, R., Kasai, N., Tsukada, S., Okajima, T. and Sumitomo, K., "Time-lapse imaging of morphological changes in a single neuron during the early stages of apoptosis using scanning ion conductance microscopy," *Journal of Structural Biology*, 191 (1), 32-38 (2015).

Tsukada, S., Nakashima, H. and Torimitsu, K., "Conductive Polymer Combined Silk Fiber Bundle for Bioelectrical Signal Recording," *PLoS One* 7(4) (2012).

