

External Awards

IEICE Communications Society Excellent Paper Award

Winner: Yoshitaka Enomoto, Tetsuya Iwado, Takashi Goto, Masaki Waki, Toshio Kurashima, and Yoshiyuki Kajihara, NTT Access Network Service Systems Laboratories

Date: May 13, 2019

Organization: The Institute of Electronics, Information and Communication Engineers (IEICE)

For “Design and Performance of Aerial Line Structure Inspection Support System with Mobile Mapping System.”

Published as: Y. Enomoto, T. Iwado, T. Goto, M. Waki, T. Kurashima, and Y. Kajihara, “Design and Performance of Aerial Line Structure Inspection Support System with Mobile Mapping System,” IEICE Trans. Commun. (Japanese Edition), Vol. J100-B, No. 12, pp. 995–1003, 2017.

Laser Society of Japan Achievement Award (Paper Prize)

Winner: Atsushi Ishizawa, Tadashi Nishikawa, Kenichi Hitachi, and Hideki Gotoh, NTT Basic Research Laboratories

Date: May 31, 2019

Organization: The Laser Society of Japan

For “Ultra-precise Frequency Conversion Using an Electro-optic-modulation Frequency Comb.”

Published as: A. Ishizawa, T. Nishikawa, K. Hitachi, and H. Gotoh, “Ultra-precise Frequency Conversion Using an Electro-optic-modulation Frequency Comb,” The Review of Laser Engineering, Vol. 46, No. 2, pp. 80–85, 2018.

AVM Award

Winner: Masaaki Matsumura, NTT Media Intelligence Laboratories

Date: June 14, 2019

Organization: The Special Interest Group of Audio Visual and Multimedia information processing, Information Processing Society of Japan (IPSJ-AVM)

For “A Study for Prediction of Heating and Strain Using Audience Behavior.”

Published as: M. Matsumura, A. Kameda, M. Isogai, H. Noto, and H. Kimata, “A Study for Prediction of Heating and Strain Using Audience Behavior,” IPSJ SIG Technical Report, Vol. 2018-AVM-101, No. 10, 2018.

AVM Award

Winner: Shoichiro Takeda, NTT Media Intelligence Laboratories

Date: June 14, 2019

Organization: IPSJ-AVM

For “A Study of Quality of Experience Assessment for Video Magnification.”

Published as: S. Takeda, A. Kameda, M. Isogai, and H. Kimata, “A Study of Quality of Experience Assessment for Video Magnification,” IPSJ SIG Technical Report, Vol. 2019-AVM-104, No. 9, 2019.

Young Researcher Award

Winner: Takashi Hosono, NTT Media Intelligence Laboratories

Date: June 28, 2019

Organization: The Institute of Image Electronics Engineers of Japan (IIEEJ)

For “Depth Edge Based Objectness Metric for Generating Instance Candidate Regions.”

Published as: T. Hosono, S. Tarashima, J. Shimamura, and T. Kinobuchi, “Depth Edge Based Objectness Metric for Generating Instance Candidate Regions,” Proc. of Visual/Media Computing Conference 2018, Yamagata, Japan, June 2018.

Outstanding Research Presentation Award

Winner: Shoichiro Takeda, NTT Media Intelligence Laboratories

Date: June 29, 2019

Organization: The Special Interest Group of Computer Graphics and Visual Informatics, IPSJ (IPSJ-CG)

For “Local Riesz Pyramids for Faster Phase-based Video Magnification.”

Published as: S. Takeda, M. Isogai, S. Shimizu, and H. Kimata, “Local Riesz Pyramids for Faster Phase-based Video Magnification,” IPSJ SIG Technical Report, Vol. 2019-CG-173, No. 4, 2019.

Young Engineer Excellent Presentation Award

Winner: Takashi Miwa, NTT Device Innovation Center

Date: July 5, 2019

Organization: Japan Association of Corrosion Control

For “New Two-layer Paint System with Zinc Rich Paint.”

Published as: T. Miwa, A. Ishii, and H. Koizumi, “New Two-layer Paint System with Zinc Rich Paint,” Proc. of the 39th Corrosion Control Conference, pp. 75–80, Tokyo, Japan, July 2018.

Young Engineer Excellent Presentation Award

Winner: Azusa Ishii, NTT Device Innovation Center

Date: July 5, 2019

Organization: Japan Association of Corrosion Control

For “Effects of Water Spray on the Degradation Behavior of Poly(ethylene terephthalate) under Accelerated Weathering Test.”

Published as: A. Ishii, T. Miwa, M. Watanabe, and S. Oka, “Effects of Water Spray on the Degradation Behavior of Poly(ethylene terephthalate) under Accelerated Weathering Test,” Proc. of the 39th Corrosion Control Conference, pp. 23–28, Tokyo, Japan, July 2018.

Papers Published in Technical Journals and Conference Proceedings

Experimental Demonstration of Secure Quantum Remote Sensing

P. Yin, Y. Takeuchi, W. Zhang, Z. Yin, Y. Matsuzaki, X. Peng, X. Xu, J. Xu, J. Tang, Z. Zhou, G. Chen, C. Li, and G. Guo
arXiv:1907.06480 [quant-ph], July 2019.

Quantum metrology aims to enhance the precision of various measurement tasks by taking advantage of quantum properties. In many scenarios, precision is not the sole target; the acquired information must be protected once it is generated in the sensing process. Considering a remote sensing scenario where a local site performs cooperative sensing with a remote site to collect private information at the remote site, the loss of sensing data inevitably causes private information to be revealed. Quantum key distribution is known to be a reliable solution for secure data transmission; however, it fails if an eavesdropper accesses the sensing data generated at a remote site. In this study, we demonstrate that by sharing entanglement between local and remote sites, secure quantum remote sensing can be realized, and the secure level is characterized by asymmetric Fisher information gain. Concretely, only the local site can acquire the estimated parameter accurately with Fisher information approaching 1. In contrast, the accessible Fisher information for an eavesdropper is

nearly zero even if he/she obtains the raw sensing data at the remote site. This achievement is primarily due to the nonlocal calibration and steering of the probe state at the remote site. Our results explore one significant advantage of “quantumness” and extend the notion of quantum metrology to the security realm.

Proposal and Verification of Auto Calibration Technique for Bias Control Circuit Connecting to Imperfect IQ-modulator

H. Kawakami, S. Kuwahara, and Y. Kisaka

Proc. of the 24th OptoElectronics and Communications Conference (OECC 2019), ThC2-2, Fukuoka, Japan, July 2019.

We show that imperfection in an IQ-modulator degrades the accuracy of the auto bias control circuit connected to the modulator’s complementary port, and propose an auto calibration technique that can effectively suppress this degradation.
