External Awards

Outstanding Presentation Award
Winner: Ryunosuke Sudo, Kyushu University; Daisuke Satoh, NTT Network Technology Laboratories; Yuji Takano, Doshisha University; Takemi Mochida, NTT Communication Science Laboratories
Date: June 16, 2016
Organization: The Japanese Psychological Association

For "Examination of the Measures and Subjective Stress of Calling Party during Disaster."
Published as: R. Sudo, D. Satoh, Y. Takano, and T. Mochida, "Examination of the Measures and Subjective Stress of Calling Party during Disaster," The 79th Annual Convention of the Japanese Psychological Association, 3EV-029, Nagoya, Japan, Sept. 2015.

Information Security Leadership Achievements (Senior Information Security Professional category)
Winner: Hisashi Kasahara, NTT Electronics
Date: July 26, 2016
Organization: International Information Systems Security Certification Consortium (ISC)²

For his contributions to the development and education of information security professionals for more than ten years as a leader in the Asia-Pacific region.

CSS2016 Student Paper Award
Winner: Yumehisa Haga, Waseda University; Yuta Takata and Mitsuaki Akiyama, NTT Secure Platform Laboratories; Tatsuya Mori, Waseda University
Date: October 12, 2016
Organization: Information Processing Society of Japan (IPSJ) Computer Security Symposium (CSS) 2016 program committee

For "An Implementation of Web Tracking Detection System and an Investigation of Third-party Tracking Sites."
Published as: Y. Haga, Y. Takata, M. Akiyama, and T. Mori, "An Implementation of Web Tracking Detection System and an Investigation of Third-party Tracking Sites," CSS2016, 3B3-1, Akita, Japan, Oct. 2016.

CSS2016 Paper Award
Winner: Naoto Kiribuchi, Dai Ikarashi, Gembu Morohashi, and Koki Hamada, NTT Secure Platform Laboratories
Date: October 12, 2016
Organization: IPSJ Computer Security Symposium (CSS) 2016 program committee

For "An Efficient Equi-Join Algorithm for Secure Computation and Its Implementation Toward Secure Comprehensive Analyses of Users' Attribute and History Information."
Published as: N. Kiribuchi, D. Ikarashi, G. Morohashi, and K. Hamada, "An Efficient Equi-Join Algorithm for Secure Computation and Its Implementation Toward Secure Comprehensive Analyses of Users' Attribute and History Information," CSS2016, 3A3-4, Akita, Japan, Oct. 2016.

MWS2016 Best Paper Award
Winner: Bo Sun, Waseda University; Mitsuaki Akiyama, NTT Secure Platform Laboratories; Tatsuya Mori, Waseda University
Date: October 12, 2016
Organization: IPSJ Anti Malware Engineering Workshop (MWS) 2016 program committee

For "Toward Automatically Detecting Promotional Attacks in Mobile App Store."
Published as: B. Sun, M. Akiyama, and T. Mori, "Toward Automatically Detecting Promotional Attacks in Mobile App Store," MWS2016, 3F2-4, Akita, Japan, Oct. 2016.

Specially Selected Paper
Winner: Hiroaki Kikuchi, Meiji University; Katsumi Takahashi, NTT Secure Platform Laboratories
Date: October 12, 2016
Organization: IPSJ

For "Zipf Distribution Model for Quantifying Risk of Re-identification from Trajectory Data."
Published as: H. Kikuchi and K. Takahashi, "Zipf Distribution Model for Quantifying Risk of Re-identification from Trajectory Data," Journal of Information Processing, Vol. 24, No. 5, pp. 816–823, 2016.

Best Paper Award
Winner: Motoharu Sasaki, Minoru Inomata, Wataru Yamada, Naoki Kita, Takeshi Onizawa, Masashi Nakatsugawa, NTT Access Network Service Systems Laboratories; Koshiro Kitao and Tetsuro Imai, NTT DOCOMO
Date: October 27, 2016
Organization: ISAP2016 (International Symposium on Antennas and Propagation)

For "Path Loss Characteristics between Different Floors from 0.8 to 37 GHz in Indoor Office Environments."
Published as: M. Sasaki, M. Inomata, W. Yamada, N. Kita, T. Onizawa, M. Nakatsugawa, K. Kitao, and T. Imai, "Path Loss Characteristics between Different Floors from 0.8 to 37 GHz in Indoor Office Environments," ISAP2016, Okinawa, Japan, Oct. 2016.

Early Career Award
Winner: Tetsuhiko Teshima, Hiroshi Nakashima, Yuko Ueno, Satoshi Sasaki, and Shingo Tsukada, NTT Basic Research Laboratories
Date: November 10, 2016
Organization: The Chemical Society of Japan, Division of Colloid and Surface Chemistry

For "Self-folded Thin Polymer Film for Encapsulation and Manipulation of Cells."
Published as: T. Teshima, H. Nakashima, Y. Ueno, S. Sasaki, and S. Tsukada, "Self-folded Thin Polymer Film for Encapsulation and Manipulation of Cells," The 67th Divisional Meeting on Colloid and Interface Chemistry International Symposium, 3B05, Asahikawa, Hokkaido, Japan, Sept. 2016.

Best Industry Paper Award
Winner: Jun Hagiwara, NTT DATA; Shinobu Saito, NTT Software Innovation Center
Date: November 11, 2016
Organization: The Third Asia Pacific Requirements Engineering Symposium (APRES 2016)

Papers Published in Technical Journals and Conference Proceedings

Extracting Current Waveforms of Appliances from Mixed Current Waveform of Their Current Waveforms and Unidentified Current Waveforms

F. Ishiyama, H. Inoue, and Y. Suzuki

Proc. of 2016 IEEE 12th International Colloquium on Signal Processing & its Applications (CSPA2016), pp. 16–21, Melaka, Malaysia, March 2016.

We propose a method of extracting current waveforms of appliances from the current waveform, which is a mixture of their current waveforms and unidentified current waveforms. The purpose of the method is to monitor the load of individual appliances by analyzing the current waveform on a power distribution board. Since the mixed current waveform contains unidentified current waveforms, a special method is required. Therefore, we propose to apply our method, called the "inscribed fitting method" with an asymmetric evaluation function, for the extraction. We apply our method to the mixed current waveforms of appliances, showing that we can extract the current waveforms of appliances from the mixed current waveforms which contain unidentified current waveforms.

Ancilla-driven Instantaneous Quantum Polynomial Time Circuit for Quantum Supremacy

Y. Takeuchi and Y. Takahashi

arXiv:1611.00510 [quant-ph], November 2016.

Instantaneous quantum polynomial time (IQP) is a model of (probably) non-universal quantum computation. Since it has been proven that IQP circuits are unlikely to be simulated classically up to a multiplicative error and an error in l_1 norm, IQP is considered one of the promising classes that demonstrate quantum supremacy. Although IQP circuits can be realized more easily than a universal quantum computer, demonstrating quantum supremacy is still difficult. It is therefore desired to find subclasses of IQP that are easy to implement. In this paper, by imposing some restrictions on IQP, we propose ancilla-driven IQP (ADIQP) as the subclass of commuting quantum computation suitable for many experimental settings. We show that even though ADIQP circuits are strictly weaker than IQP circuits in a sense, they are also hard to simulate classically up to a multiplicative error and an error in l_1 norm. Moreover, the properties of ADIQP make it easy to investigate the verifiability of ADIQP circuits and the difficulties in realizing ADIQP circuits.