

External Awards

Distinguished Achievement and Contributions Award

Winner: Yutaka Miyamoto, NTT Network Innovation Laboratories

Date: June 6, 2019

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

Dr. Miyamoto has long been engaged in research on the core technologies for high-speed, high-capacity optical transmission systems used in optical networks and has made many achievements. In particular, he has made outstanding achievements in research on the coherent, multicarrier, multilevel modulation/demodulation system.

Best Conversant Award

Winner: Keisuke Tsunoda, NTT Service Evolution Laboratories

Date: July 5, 2019

Organization: The Information Processing Society of Japan (IPSI) Committee of DICO 2019 symposium

He was selected because he asked interesting and thought-provoking questions at the DICO 2019 symposium.

Best Poster Award

Winner: Takashi Kurushima, Yoshiki Sakamoto, Kimi Ueda, Hirotake Ishii, Hiroshi Shimoda, Kyoto University; Rika Mochizuki, Masahiro Watanabe, NTT Service Evolution Laboratories

Date: September 22, 2019

Organization: 3rd International Conference on Computer-Human Interaction Research and Applications (CHIRA 2019)

For “A Study on Legibility with Pairwise Comparison in Simultaneous Multilingual Display on Digital Signage.”

Published as: T. Kurushima, Y. Sakamoto, K. Ueda, H. Ishii, H. Shimoda, R. Mochizuki, and M. Watanabe, “A Study on Legibility with Pairwise Comparison in Simultaneous Multilingual Display on

Digital Signage,” Proc. of CHIRA 2019, Vienna, Austria, Sept. 2019.

Award for Encouragement of Research in the 29th Annual Meeting of MRS-J Symposium L

Winner: Riku Takahashi, NTT Basic Research Laboratories

Date: November 29, 2019

Organization: The Materials Research Society of Japan (MRS-J)

For “Creation of Tough Hydrogel Architectures Towards Obtaining Hydrogel Fluidic Devices.”

Published as: R. Takahashi, “Creation of Tough Hydrogel Architectures Towards Obtaining Hydrogel Fluidic Devices,” 29th Annual Meeting of MRS-J, Yokohama, Japan, Nov. 2019.

The 2nd Hyogo-Kansai Caterpillar STEM award, Outstanding Achievement Award

Winner: Keiko Takase, NTT Basic Research Laboratories

Date: February 11, 2020

Organization: Caterpillar Japan

For her research on electrical control of spin-orbit interaction using semiconductor nanowire.

IPSJ Yamashita SIG Research Award

Winner: Yusuke Ichikawa, NTT Service Evolution Laboratories

Date: March 6, 2020

Organization: IPSJ

For “Evaluation of Dynamic Guide Signs Control Pedestrians in Public Facilities.”

Published as: Y. Ichikawa, A. Hayashi, Y. Mihara, K. Shimizu, and H. Tezuka, “Evaluation of Dynamic Guide Signs Control Pedestrians in Public Facilities,” IPSJ SIG Tech. Report, Vol. 2019-CDS-24, No. 31, 2019.

Papers Published in Technical Journals and Conference Proceedings

Topological Stack-queue Mixed Layouts of Graphs

M. Miyauchi

IEICE Transactions on Fundamentals of Electronics, Vol. E103-A, No. 2, pp. 510–522, February 2020.

One goal in stack-queue mixed layouts of a graph subdivision is to obtain a layout with a minimum number of subdivision vertices per edge when the number of stacks and queues are given. Dujmović and Wood showed that for every integer $s, q > 0$, every graph G has an

s -stack q -queue subdivision layout with $4\lceil \log_{(s+q)q} \text{sn}(G) \rceil$ (resp. $2 + 4\lceil \log_{(s+q)q} \text{qn}(G) \rceil$) division vertices per edge, where $\text{sn}(G)$ (resp. $\text{qn}(G)$) is the stack number (resp. queue number) of G . This paper improves upon these results by showing that for every integer $s, q > 0$, every graph G has an s -stack q -queue subdivision layout with at most $2\lceil \log_{s+q-1} \text{sn}(G) \rceil$ (resp. at most $2\lceil \log_{s+q-1} \text{qn}(G) \rceil + 4$) division vertices per edge. That is, this paper improves upon the previous results for graphs with larger stack number $\text{sn}(G)$ or queue number

$qn(G)$ than given integers s and q . Also, the larger the given integer s is, the more the previous results are improved.

A Method to Determine If a Test Case Is Necessary Using Support Vector Machine

S. Sunaga, K. Kikuma, K. Jimbo, K. Satoh, and K. Ueda

Proc. of the 2nd International Conference on Artificial Intelligence in Information and Communication (ICAIIIC 2020), pp. 448–453, Fukuoka, Japan, February 2020.

Communication software used for the Next Generation Network (NGN) is required to be highly reliable, so it incorporates many methods to improve quality and prevent service interruptions during

operation of public networks. However, the accumulation of quality improvement methods has resulted in problems with longer development times and increasing costs. The authors are working to solve such problems by automating development processes. In this paper, we propose a method of determining if a test case is necessary using a support vector machine. We vectorize know-how regarding the creation of verification test cases from experts who understand the requirement specifications. The support vector machine learns the vector as the training data. Then this is used to automatically determine if a test case is necessary. We evaluated the effectiveness of the method in automatically determining if a test case of particular requirements is necessary through practical experiments.
