

External Awards

The Young Scientists' Award, the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology

Winner: Gento Yamahata, NTT Basic Research Laboratories

Date: April 14, 2021

Organization: Ministry of Education, Culture, Sports, Science and Technology

For his research activities of high-accuracy single-electron control using silicon quantum dots.

Young Researcher's Award

Winner: Takayuki Nakamura, NTT Network Service Systems Laboratories

Date: April 16, 2021

Organization: The Institute of Electronics, Information and Communication Engineers (IEICE) Technical Committee on Network Systems

For "A Study on D-Plane Architecture and Configuration Method of a Data Network Slice Constituting an E2E Slice."

Published as: T. Nakamura, T. Narumi, M. Amasaka, and T. Sato, "A Study on D-Plane Architecture and Configuration Method of a Data Network Slice Constituting an E2E Slice," IEICE Tech. Rep., Vol. 121, No. 2. NS2021-12, pp. 65–70, Apr. 2021.

CHI 2021 Honorable Mention Award

Winners: Amanda Baughan, Nigini Oliveira, Tal August, University of Washington; Naomi Yamashita, NTT Communication Science Laboratories; Katharina Reinecke, University of Washington

Date: May 13, 2021

Organization: The Association for Computing Machinery (ACM) Conference on Human Factors in Computing Systems (CHI 2021)

For "Do Cross-cultural Differences in Visual Attention Patterns Affect Search Efficiency on Websites?"

Published as: A. Baughan, N. Oliveira, T. August, N. Yamashita, and K. Reinecke, "Do Cross-cultural Differences in Visual Attention Patterns Affect Search Efficiency on Websites?", CHI 2021, Virtual conference, May 2021.

Distinguished Service Award

Winner: Tsuyoshi Joucha, NTT Network Service Systems Laboratories

Date: May 21, 2021

Organization: The Telecommunication Technology Committee (TTC)

For his contribution to standardization activities adapted to the times as a member of the planning and strategy committee.

Distinguished Service Award

Winner: Seiichi Sakaya, NTT Network Service Systems Laboratories

Date: May 21, 2021

Organization: TTC

For his contribution to developing specifications concerning interconnections to support migration from public switched telephone networks to Internet protocol networks.

Information and Communication Technology Award, TTC Chairman's Prize

Winner: Kensaku Komatsu, NTT Communications Corporation

Date: May 21, 2021

Organization: TTC

For his achievements related to improving domestic technological capabilities by promoting international standardization of WebRTC and business promotion.

Best Paper Award

Winners: Atsushi Taniguchi, Takeru Inoue, Kohei Mizuno, NTT Network Innovation Laboratories; Takashi Kurimoto, Atsuko Takefusa, Shigeo Urusidani, National Institute of Informatics

Date: May 21, 2021

Organization: IEICE Technical Committee on Communications Society

For "Efficient Reliability Evaluation of Multi-domain Networks with Secure Intra-domain Privacy."

Published as: A. Taniguchi, T. Inoue, K. Mizuno, T. Kurimoto, A. Takefusa, and S. Urusidani, "Efficient Reliability Evaluation of Multi-domain Networks with Secure Intra-domain Privacy," IEICE Trans. Commun., Vol. E103-B, No. 4, pp. 440–451, 2020.

Best Paper Award

Winners: Naruto Arai, NTT Space Environment and Energy Laboratories; Ken Okamoto, NTT Information Network Laboratory Group; Jun Kato, NTT Space Environment and Energy Laboratories; and Yoshiharu Akiyama, NTT Advanced Technology Corporation

Date: June 3, 2021

Organization: IEICE

For "Method of Measuring Conducted Noise Voltage with a Floating Measurement System to Ground."

Published as: N. Arai, K. Okamoto, J. Kato, and Y. Akiyama, "Method of Measuring Conducted Noise Voltage with a Floating Measurement System to Ground," IEICE Trans. Commun., Vol. E103-B, No. 9, pp. 903–910, 2020.

Best Paper Award

Winners: Toru Mano, Takeru Inoue, NTT Network Innovation Laboratories; Kimihiro Mizutani, Kindai University; Osamu Akashi, National Institute of Informatics

Date: June 3, 2021

Organization: IEICE

For "Reducing Dense Virtual Networks for Fast Embedding."

Published as: T. Mano, T. Inoue, K. Mizutani, and O. Akashi, "Reducing Dense Virtual Networks for Fast Embedding," IEICE Trans. Commun., Vol. E103-B, No. 4, pp. 347–362, 2020.

Papers Published in Technical Journals and Conference Proceedings

Patentability Issues on AI-related Invention in Japan

Y. Nakajima and H. Shiomi

Journal of International Association for the Protection of Intellectual Property of Japan, Vol. 46, No. 2, pp. 71–89, March 2021.

Patent applications for artificial intelligence (AI)-related inventions are swiftly increasing not only in Japan but also in other countries around the world. There is a growing need for patent applications for AI-related inventions, even in industries and sectors that have not traditionally had much to do with the computer software-related inventions. In light of these circumstances, the Japanese Patent Office is making public and enriching case studies related to the requirements for describing AI-related technologies and determining inventive step in the Patent-Utility Model Examination Handbook. This article classifies AI-related inventions into four types according to their technical features, examines the requirements for novelty, inventive step, and description of each kind of invention, and points out the problems that may arise with each class in the future. The article also aims to highlight the different characteristics of AI-related inventions from general software-related inventions.

Flexible Assimilation of Human's Target for Versatile Human-Robot Physical Interaction

A. Takagi, Y. Li, and E. Burdet

IEEE Transactions on Haptics, Vol. 14, No. 2, pp. 421–431, June 2021.

Recent studies on the physical interaction between humans have revealed their ability to read the partner's motion plan and use it to improve one's own control. Inspired by these results, we develop an intention assimilation controller (IAC) that enables a contact robot to estimate the human's virtual target from the interaction force, and combine it with its own target to plan motion. While the virtual target depends on the control gains assumed for the human, we show that this does not affect the stability of the human-robot system, and our novel scheme covers a continuum of interaction behaviors from cooperation to competition. Simulations and experiments illustrate how the IAC can assist the human or compete with them to prevent collisions.

In this article, we demonstrate the IAC's advantages over related methods, such as faster convergence to a target, guidance with less force, safer obstacle avoidance, and a wider range of interaction behaviors.
