

External Awards

CHEMINAS Young Innovator Award

Winner: Tetsuhiko Teshima, NTT Basic Research Laboratories

Date: March 13, 2020

Organization: Society for Chemistry and Micro-Nano Systems (CHEMINAS)

For the fabrication of devices for dynamic manipulation of cells using microfabrication technology.

The achievements he has made since he was a student on the discovery of the unique physical phenomenon of self-assembly based on microfabrication technology and the application of devices fabricated using this phenomenon to cell and tissue engineering were highly evaluated.

Best Paper Award

Winner: Yoji Yamato, NTT Network Service Systems Laboratories

Date: March 26, 2020

Organization: The 8th IAE International Conference on Industrial Application Engineering 2020 (ICIAE 2020)

For “Proposal of Automatic Offloading for Function Blocks of Applications.”

Published as: Y. Yamato, “Proposal of Automatic Offloading for Function Blocks of Applications,” ICIAE 2020, pp. 4–11, Shimane, Japan, Mar. 2020.

IPSJ Outstanding Paper Award

Winner: Mana Sasagawa, Arinobu Nijima, Ryosuke Aoki, Tomoki Watanabe, NTT Service Evolution Laboratories; Tomohiro Yamada, NTT Electronics Corporation

Date: March 27, 2020

Organization: Information Processing Society of Japan (IPSJ)

For “A Food Texture Display with Hardness and Shape by Jamming.”

Published as: M. Sasagawa, A. Nijima, R. Aoki, T. Watanabe, and T. Yamada, “A Food Texture Display with Hardness and Shape by Jamming,” IPSJ Journal, Vol. 60, No. 2, pp. 376–384, Feb. 2019.

Award for Science and Technology (Development Category), the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology

Winner: Ken Nakamura, NTT Media Intelligence Laboratories; Takayuki Onishi, NTT R&D Planning Department; and Koyo Nitta, NTT Device Innovation Center

Date: April 7, 2020

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

For the development of high-quality H.265 video coding LSI and equipment.

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

Winner: Keiko Takase, NTT Basic Research Laboratories

Date: April 7, 2020

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

For her research on control of spin states and quantum transport in semiconductor quantum nanostructures.

Papers Published in Technical Journals and Conference Proceedings

Standardization Status of Immersive Live Experience in ITU-T SG16

H. Imanaka and J. Nagao

IEEE Communications Standards Magazine, Vol. 3, No. 3, pp. 15–16, September 2019.

ITU-T Study Group 16 (SG16) launched a new Question called Q8/16 in 2016 to study the standardization of Immersive Live Experience (ILE) as a new immersive service that enables audiences in remote sites to feel highly realistic sensations at the same time even if the venues are far from the event site.

Smooth Motion Parallax and High-resolution Display Based on Visually Equivalent Light Field 3D

M. Date, S. Shimizu, D. Mikami, and Y. Kusachi

Proc. of SPIE, Vol. 11402, Three-Dimensional Imaging, Visualization, and Display 2020, 1140205, California, USA, April/May 2020 (online only).

The light field concept can correctly and completely describe the distribution of rays in 3D space within the theory of geometrical optics. However, the quantity of data is huge and not easy to capture

or process. Though light field 3D displays are almost ideal in principle, they are not actually practical given the huge number of pixels required. To compress the quantity of data, we proposed the visually equivalent light field (VELF), which uses the characteristics of human vision. Though several cameras are needed, VELF can be captured by a camera array. Reconstructing the ray distribution involves linear blending, but this process is so simple that we can achieve this calculation optically in the VELF3D display. It produces high image quality as its high pixel-usage efficiency overcomes the tradeoff between resolution and directional density of rays. In this paper, we summarize the relationship between the characteristics of human vision and VELF and give further details on the VELF3D

display, which consists of a horizontal RGB stripe LCD panel and a parallax barrier, whose spacing width is almost the same as pixel pitch. Though it is similar to the conventional parallax barrier type autostereoscopic 3D display, it can reproduce correct rays for human vision. A high feeling of existence is induced by the display's smooth and exact motion parallax; its resolution is high enough to display characters. Head tracking allows the viewing zone to be greatly expanded while maintaining smooth motion parallax. Since image capture and display are very simple, VELF is suitable for real-time live action applications with high image quality.
