



KONICA MINOLTA

News Release

Konica Minolta Works with GROOVE X to Develop AI Technologies to Improve the Physical Expressivity of LOVOT Home Robot

Tokyo (August 31, 2020) – Konica Minolta, Inc. (Konica Minolta) and a Tokyo-based robotics startup, GROOVE X, Inc. (GROOVE X), have been working together since the spring of 2020 to develop imaging IoT/AI technologies to improve the physical expressivity of LOVOT, a home robot launched by GROOVE X. Konica Minolta is pleased to announce that it will give demonstrations of the state-of-the-art system incorporating these technologies under joint development at the Open Source Conference 2020 Online/Kyoto.



LOVOT home robot

Background

Konica Minolta has developed optimized ready-to-run deep learning models for object recognition and gesture recognition, leveraging its core imaging and optical technologies derived from its experience in the camera and photo business, as well as embedded AI systems using field programmable gate arrays (FPGA), which are integrated circuits designed to be configured after manufacturing. The company is thus working to incorporate deep learning technology into network cameras and other IoT devices (edge devices).

GROOVE X has developed a home robot named LOVOT that incorporates the latest technologies and awakens love in users. Winner of the BEST OF CES award in CES 2020, LOVOT has opened a new dimension in the field of robotics with its human friendliness. Konica Minolta and GROOVE X have agreed to develop technologies to improve the physical expressivity of LOVOT utilizing Konica Minolta’s proprietary imaging IoT/AI technologies.

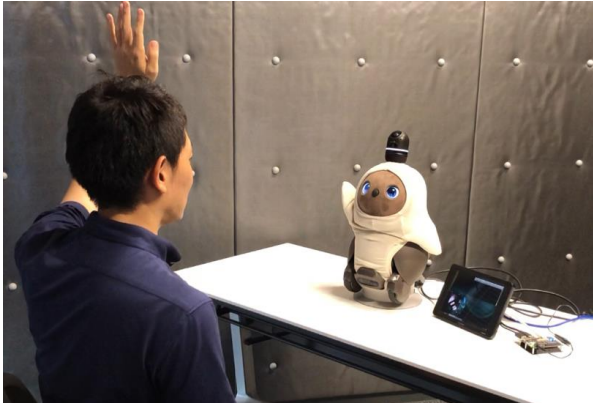
Presentation at the Open Source Conference 2020 Online/Kyoto (Scheduled)

Konica Minolta and GROOVE X are developing technologies to improve the physical expressivity of LOVOT by connecting it with an AI accelerator (FPGA board) containing Konica Minolta’s AI algorithm for human gesture recognition to enable LOVOT to recognize human gestures and actions in addition to its existing human detection ability, and by controlling the motion of LOVOT using the API provided by GROOVE X.

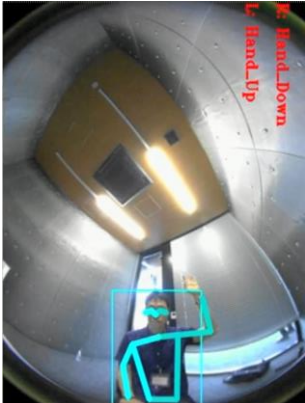
By using NNgen* to implement the gesture estimation algorithm on the AI accelerator, the time required for implementing the algorithm on the FPGA board and development man-hours can be reduced.

At the Open Source Conference 2020 Online/Kyoto, Konica Minolta will introduce its imaging IoT/AI technologies through demonstrations that show how LOVOT recognizes and imitates human gestures.

1. Demonstration of how well LOVOT responds to human gestures (scheduled)



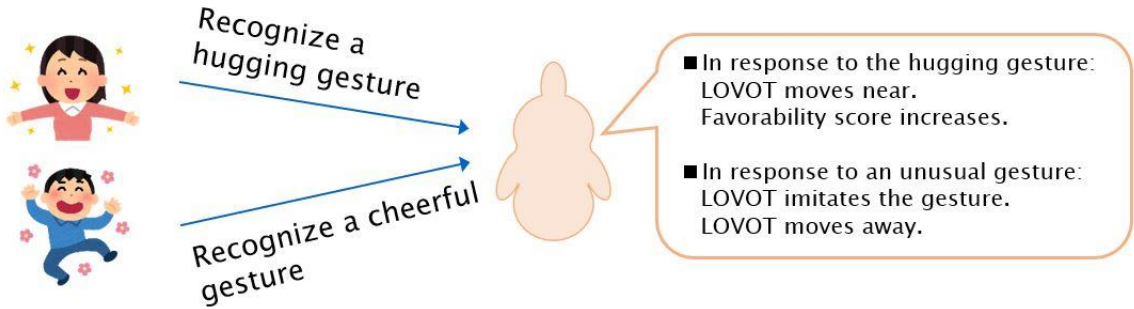
LOVOT recognizes the hand-raising gesture and imitates it.



*This is how LOVOT recognizes the raised right hand.

2. Future plan to improve the physical expressivity of LOVOT by gesture recognition

Improvement of the gesture recognition ability of LOVOT



* NNGen is an open-source compiler developed jointly by the University of Tokyo and Konica Minolta. This is a domain-specific, extensible high-level synthesis compiler that makes it easy and effective to implement a dedicated accelerator on the FPGA board, thus enabling high-speed processing of ready-to-run deep-learning models configured for specific uses.

For more information

Open Source Conference 2020 Online/Kyoto

Dates and time: August 28 (Fri.) and 29 (Sat.), 2020, 10:00 – 18:00

Online venue (Zoom & YouTube Live)

<https://event.ospn.jp/osc2020-online-kyoto/> (in Japanese)

Information on Konica Minolta's imaging technologies (optical devices and image sensing technologies) and cutting-edge IoT and AI technologies

<https://imaging-iot.konicaminolta.com/> (in Japanese)

GROOVE X's LOVOT

<https://lovot.life/en/>

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