

NEWS RELEASE

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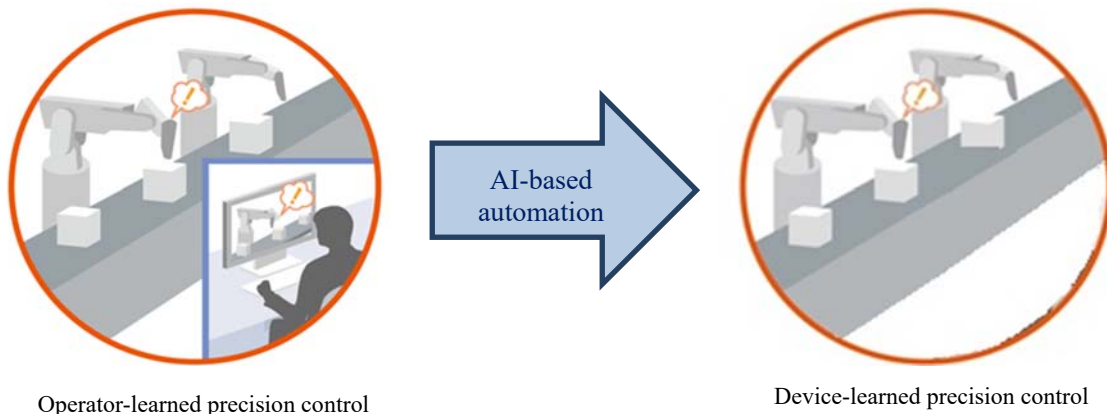
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Mitsubishi Electric Develops Smart-learning Algorithm for Extra-efficient AI

Dramatically reduces number of trials required for precise machine-learned AI control

TOKYO, May 24, 2017 – [Mitsubishi Electric Corporation](http://www.mitsubishielectric.com) (TOKYO: 6503) announced today that it has developed a proprietary deep-reinforcement algorithm for artificial-intelligence (AI) machine control that requires just one-fiftieth the number of trials compared to conventional AI control methods. The algorithm is expected to enable smart equipment such as industrial robots and vehicles to use sensors and cameras to rapidly learn about their environments for finely tuned AI-based control in unique environments.



Operator-learned precision control

Device-learned precision control

Main Features

1) Proprietary deep-reinforcement algorithm dramatically reduces learning time

- Machines achieve extra-smart deep-reinforcement learning using sensor and camera data
- Dramatically reduces number of trials and learning time compared to conventional deep-reinforcement learning methods

Conventional methods for AI-based smart work require extensive time to process huge amounts of data obtained from cameras and sensors, as well as extensive trials by machines using this data.

2) *Algorithm combined with Compact AI can be equipped in wide range of machines*

- Combined with Mitsubishi Electric’s Compact AI technology released in February 2016, the new algorithm requires just one-hundredth the amount of calculations compared to conventional methods
- Machines with limited processing resources can use the solution to perform deep-reinforcement learning

Working in combination with Mitsubishi Electric’s Compact AI technology, the algorithm significantly reduces the calculation time compared to conventional methods, enabling deep-reinforcement learning to be deployed in a wide range of resource-limited equipment.

Solution	Learning method	Optimization time
New	Fully automated machine learning	Several minutes to 30 minutes
Existing	Machine learning supported by human experts	Several hours to half a day

Background

Deep-learning AI to process massive amounts of information is expected to be deployed in a wide range of businesses. Ernst & Young Institute Co., Ltd. calculated the global market for this field to be worth 3.6 trillion yen (US\$ 35 billion) in 2015 and expects annual growth to average 30 percent. Conventional technology does not enable most equipment to achieve fully automated control, instead requiring human experts to provide teaching and programming input. Although AI is advancing rapidly, the huge number of trials that must be performed for machine learning also has been a barrier. In response, Mitsubishi Electric has developed a technology for fast, highly efficient automated machine learning that significantly reduces the amount of time and cost required to implement deep-learning AI control. Going forward, the company’s deep-learning AI solution is expected to enable high-inference data processing by machines for increased industrial productivity.

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About Mitsubishi Electric Corporation

With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,238.6 billion yen (US\$ 37.8 billion*) in the fiscal year ended March 31, 2017. For more information visit:

www.MitsubishiElectric.com

*At an exchange rate of 112 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2017