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Two Mitsubishi Electric Researchers Elevated to IEEE Fellows, Class of 2024

Recognized for contributions to technological innovation and societal progress

IEEE Fellow Certificate (From left: Shumpei Kameyama and Jonathan Le Roux)

TOKYO, February 15, 2024 – Mitsubishi Electric Corporation (TOKYO: 6503) announced today that Dr. Shumpei Kameyama of Mitsubishi Electric's Information Technology R&D Center (Kamakura, Japan) and Dr. Jonathan Le Roux of Mitsubishi Electric Research Laboratories, Inc. (Cambridge, MA, USA) have been awarded the title of IEEE Fellow. IEEE, the world's largest association of some 420,000 professionals engaged in electrical/electronic engineering and information/communication technology in 160 countries, confers fellowships annually on less than 0.1% of its voting members for outstanding contributions to technological innovation and societal progress.

Dr. Shumpei Kameyama: For leadership in fiber-based lidar technology for environment sensing applications

As a researcher at Mitsubishi Electric's Information Technology R&D Center, Dr. Kameyama pioneered fiber-based LiDAR (Light Detection And Ranging) instruments, which enable stable remote sensing of wind speed and CO_2 density, by integrating Mitsubishi Electric's proprietary fiber-based optical circuits (for connecting optical components), novel optical-control technologies, and advanced knowledge of atmospheric science. His achievements have contributed to more efficient wind-power generation, advanced aviation safety and advanced monitoring of global warming.

Dr. Kameyama's fiber-based technology contributed to the development of a wind-sensing LiDAR and played a central role in related international standardization, resulting in a significant expansion of the global LiDAR market, especially in the fields of wind-power generation and aviation safety. As a result, the main instrument for wind sensing has shifted from low-tech anemometers (simple devices with 3 or 4 cups that rotate in the wind) to advanced remote sensors, i.e. LiDARs. Dr. Kameyama has also adapted his LiDAR technology for CO_2 sensing to improve the performance of satellites used to measure greenhouse gases.

Dr. Jonathan Le Roux: For contributions to multi-source speech and audio processing

Dr. Jonathan Le Roux, a researcher at Mitsubishi Electric Research Labs, has made fundamental contributions to the field of multi-speaker speech processing, especially to the areas of speech separation and multi-speaker end-to-end automatic speech recognition (ASR). His contributions constituted a major advance in realizing a practically usable solution to the cocktail party problem, enabling machines to replicate humans' ability to concentrate on a specific sound source, such as a certain speaker within a complex acoustic scene—a long-standing challenge in the speech signal processing community. Additionally, he has made key contributions to the measures used for training and evaluating audio source separation methods, developing several new objective functions to improve the training of deep neural networks* for speech enhancement, and analyzing the impact of metrics used to evaluate the signal reconstruction quality. Dr. Le Roux's technical contributions have been crucial in promoting the widespread adoption of multi-speaker separation and end-to-end ASR technologies across various applications, including smart speakers, teleconferencing systems, hearables, and mobile devices.

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About Mitsubishi Electric Corporation

With more than 100 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. Mitsubishi Electric enriches society with technology in the spirit of its "Changes for the Better." The company recorded a revenue of 5,003.6 billion yen (U.S.$ 37.3 billion*) in the fiscal year ended March 31, 2023. For more information, please visit www.MitsubishiElectric.com

*U.S. dollar amounts are translated from yen at the rate of ¥134=U.S.$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2023

* An algorithm that mimics how the human brain works, as if neurons in the human brain are connected to each other and exchange information