

December 9, 2019

OMRON Corporation

Square Enix Co., Ltd.

OMRON and Square Enix Launch Joint Research on “AI that Helps Motivate Humans”

- Table tennis robot "Forpheus" equipped with joint research technology exhibit at "CES (Consumer Electronics Show) 2020"-

OMRON Corporation (HQ: Shimogyo-ku, Kyoto; President and CEO: Yoshihito Yamada) and Square Enix Co., Ltd. (HQ: Shinjuku-ku, Tokyo; President and Representative Director: Yosuke Matsuda; hereinafter, “Square Enix”) announced today the commencement of joint research on “artificial intelligence (AI) that helps motivate humans for FORPHEUS, an innovative table tennis robot tutor that harnesses OMRON’s state-of-the-art technology. Through this joint research, the two companies aim to develop an AI algorithm that generates motivational feedback from vital data and other kinds of information, thereby establishing technology that brings out the ability to stimulate dramatic human growth.

Based on the philosophy of the founder Kazuma Tateisi, “To the machine, the work of the machine, to man the thrill of further creation”, OMRON is aim to shape a future that achieves “harmony between humans and machines,” with the latter bringing out the abilities and creativity of the former through the core technology “Sensing & Control + Think”. In 2013, the table tennis robot “Forpheus” was developed in order to introduce “harmony between humans and machines,” by the core technology “Sensing & Control + Think” in easy to understand. Since then, we have evolved our core technology every year to bring out human abilities. Featuring cutting-edge AI, robotics, and sensing & control technologies, the latest 5th generation FORPHEUS possesses playing skills high enough to maintain a rally with professional players. The robot’s excellent coaching skills promote the growth of human players by optimizing returns and providing players with personalized tips based on a thorough understanding of each individual person.

Under the framework of this joint research, the two companies aim to develop AI that can realize personalized coaching to enhance each player’s motivation to play better, by combining OMRON’s proprietary “sensing technology for reading human emotions and ability” and Square Enix’s “AI technology (Meta-AI[※]) for differentiating how a game unfolds for each player to stimulate an emotional response in them,” which they have fostered through the development of electronic games. As humans communicate with machines equipped with this AI while they play table tennis together, it is hoped that a new relationship between humans and machines - machines drawing the best performance out of humans - will be made a reality.

The Advanced Technology Division (ATD) at Square Enix has been leading development of Meta-AI technologies, a new mechanic that can automatically learn from a user's emotions and then produce unique content based on the data. In the near future, it is expected that a digital game will be playable not only on a display screen, but also in real space. Square Enix's Meta-AI will have an important role in realizing the potential of real space play in the future and the company's partnership with the FORPHEUS project will allow them to advance their technology and contribute to this real-world opportunity.

Meanwhile, OMRON plans to apply the fruits of this joint technology development to focus business domains such as factory automation (FA), healthcare and social solution. One industrial sector in which such technologies may be applied is factory automation, where machines can better motivate operators by offering appropriate support in a way that matches operators' skill levels. OMRON believes that this joint research of FORPHEUS will advance its drive to solve social issues to achieve "harmony between humans and machines."

OMRON will exhibit its latest generation of FORPHEUS at the Consumer Electronics Show (CES®) 2020, which will be held in Las Vegas, Nevada, the U.S. on January 7-10, 2020.

※ In games, Meta-AI observes the characters, environment and players all together over time, and then uses the information to adapt the general strategies for enemies, non-player characters, terrain, weather and more in the game.

About this joint research

Duration: From December, 2019 to March 2020

Objective: Development of an algorithm for motivation-controlling AI for use in a table tennis robot tutor

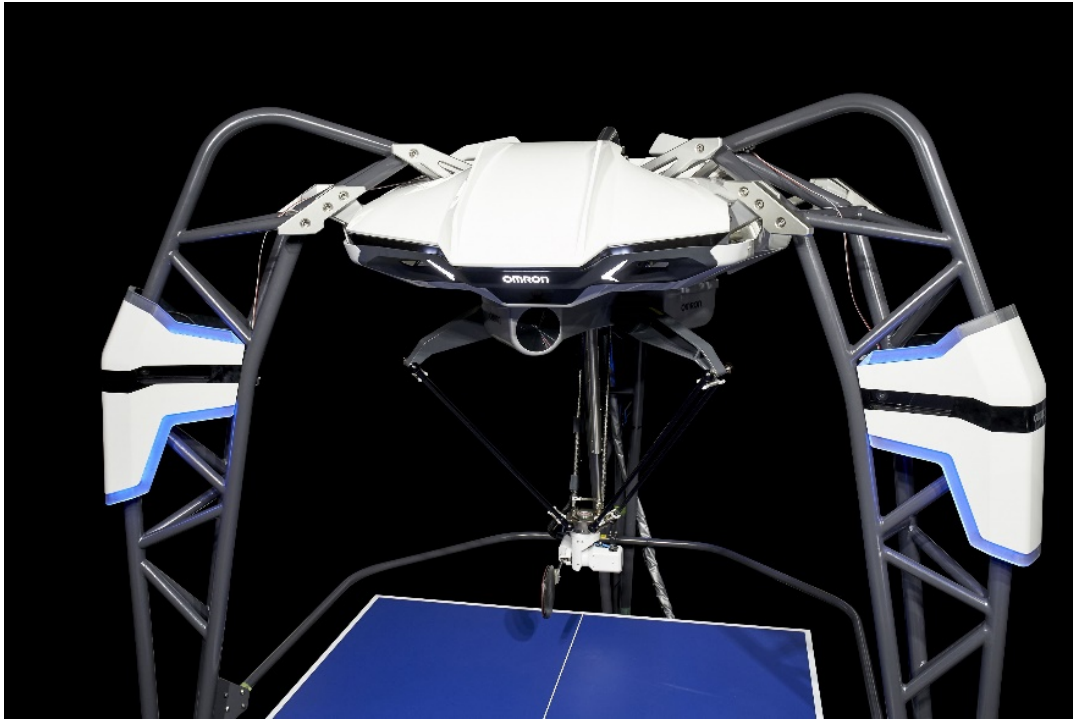
Division of roles:

OMRON: Development of a concept and architecture for the table tennis robot, verification of effects, and study of algorithm improvement techniques

Square Enix: Development of a concept, designing of architecture for the motivation-controlling AI, setting of evaluation indicators, provision of advice/support for development, and study of algorithm improvement techniques

About FORPHEUS

FORPHEUS embodies the concept of "harmony between humans and machines," that is, machines bringing out the abilities and creativity of humans using OMRON's core technology of "Sensing & Control + Think." The development of this table tennis tutor robot began in 2013, and its 5th generation model attracted significant attention at the CES 2019. It is made up of robots, sensors, controllers, and other products that OMRON's Industrial Automation Business distributes, and technologies developed for FORPHEUS are put to commercial applications.



5th generation FORPHEUS

In this joint research, FabCafe operated by Loftwork Inc. cooperates in project management.

About OMRON Corporation

OMRON Corporation is a global leader in the field of automation based on its core technology of "Sensing & Control + Think." OMRON's business fields cover a broad spectrum, ranging from industrial automation and electronic components to social infrastructure systems, healthcare, and environmental solutions. Established in 1933, OMRON has about 35,000 employees worldwide, working to provide products and services in around 120 countries and regions. For more information, visit OMRON's website: <https://www.omron.com/>

About Square Enix Co., Ltd.

Square Enix Co., Ltd. develops, publishes, distributes and licenses SQUARE ENIX®, EIDOS® and TAITO® branded entertainment content around the world. The Square Enix group of companies includes a global network of leading development studios and boasts a valuable portfolio of intellectual property, including: FINAL FANTASY®, which has sold over 147 million units worldwide; and DRAGON QUEST®, which has sold over 78 million units worldwide; TOMB RAIDER®, which has sold over 74 million units worldwide; and the legendary SPACE INVADERS®. Square Enix Co., Ltd. is a Japan-based, wholly owned subsidiary of Square Enix Holdings Co., Ltd.

More information on Square Enix Co., Ltd. can be found at <https://www.jp.square-enix.com/>

About The Advanced Technology Division at Square Enix

The Advanced Technology Division (ATD) at Square Enix conducts applied research and develops core technologies covering all aspects of games. One of ATD's goals is to help create new markets by using advanced game technologies. In particular, ATD hopes to see their proven game AI technology contribute to society and people's lives.

<About FabCafe>

The term FAB incorporates the meanings of both FABulous and FABrication, which is free from the constraints of mass production and market theory. FabCafe shares the FAB spirit in a fun and user-friendly manner, while providing an open platform to support individuals in their creative efforts to make new things. We believe that our community will bring innovation to the future of making. (<https://fabcafe.com/>)

