

# FORPHEUS robot from Omron is a table tennis coach

5 March 2017, by Nancy Owano



These days finding a partner for a good game of table tennis does not mean having to depend on human players; you can play with a robot. However, Omron has developed a table tennis robot that is quite special. OK, it can return the ball but this robot has the edge because it is not just an adept companion. It is an intelligent coach.

It holds the Guinness World Records title for being the first [robot](#) table tennis tutor for its unique technological intelligence and educational [capabilities](#).

In a video posted late last month, we see the robot in action, and its play is interwoven with coaching and information which the human opponent can leverage in order to improve skills.

The current development leader of the robot is Taku Oya, who introduces himself in the video and tells viewers "I live in Kyoto," he said, and his job at Omron is to develop controllers for moving robots.

As important, he conveys the Omron mission he puts into practice, as part of a company finding that place where humans and machines "harmonize

together."

The robot that they developed is called FORPHEUS. Before you go hunting down your Greek mythology lists for some character named Forpheus, know that the acronym stands for Future Omron Robotics Technology for Exploring Possibility of Harmonized Automation with Sinic Theoretics. The company though did not miss an opportunity to state a tie-in with mythology.

They said it is also a combination of "For" and "ORPHEUS (a bard in Greek mythology as a symbol of human creativity)," representing OMRON's attitude of bringing out human creativity and possibility.

FORPHEUS is [equipped](#) with technology where humans and machines grow together. The AI part of the project had the team working on enabling the robot to judge if the player was good or bad at table tennis and it can judge the skill level of the opponent.

The Omron blog carried some background on how the technology was developed. They said they got various data from people coming to their innovation center. "Some were good at ping pong and some were novices." They had them play and acquired their data from over 100 people.

FORPHEUS watches not only ball's speed but also the "harmony level" with a [player](#) by observing his/her facial expressions and skeletal information.

The robot has two vision sensors and one motion sensor. [Vision](#) sensors identify the movement of the ball.

"FORPHEUS also features an array of cameras that are situated above the ping pong table which monitors the position of the [ball](#)..."

"It is capable of precise rotational speed estimation,

giving a real time response with almost minimal [margin](#) of error," said Poulami Nag in *International Business Times*.

"This technology can be used to teach human players by showing the highly accurate trajectory prediction using the firm's proprietary prediction module."

The [motion sensor](#) identifies the movement of the opponent.

A controller can analyze speed at one thousand times a second.

Another interesting feature is its messaging system on the net. It helps the player know what is needed to improve. The system also communicates encouragement. "I'm very happy to play with you!" "Good job! Hang in there!"

The value of the robot evidently hits very close to home. Oya said his own skills have developed since he started playing table tennis with the robot.

The IBT article said, "It motivates the player to acquire better timing, proper placement and better [skills](#)."

According to Oya in the Omron blog, "We configured FORPHEUS so that it can consider changing its return level in three phases, from Easy to Normal and Hard, when the player's skill grows while he/she is enjoying the rally."

Figuratively speaking the tables are turning. Up to now, noted Oya, it is the human who taught the robot how to behave; in the next 20 years, it may be possible that a robot teaches a robot, or develops a robot.

The company said FORPHEUS, born in 2013, is "still [evolving](#)."

© 2017 Tech Xplore

APA citation: FORPHEUS robot from Omron is a table tennis coach (2017, March 5) retrieved 26 May 2022 from <https://techxplore.com/news/2017-03-forpheus-robot-omron-table-tennis.html>

*This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no*

*part may be reproduced without the written permission. The content is provided for information purposes only.*