



Robots and Artificial Intelligence

Hiroshi Ishiguro, Osaka University, Professor

Robert Riener, ETH Zurich, Professor

Il Hong Suh, Hanyang University, Professor

Robots are no longer just a product of our imagination. The advanced, human-like artificial intelligence portrayed in science fiction movies are becoming a true reality. The progress achieved by the robotics industry has many implications for the entire world, and leading experts discussed and explored the future of artificial intelligence at the 2015 World Knowledge Forum.

There has been considerable progress in the usage of machines in the medical sector, especially in rehabilitation.

“Ninety percent of the time, [patients] are not active,” said Robert Riener, Professor at ETH Zurich. “They’re not mobilized, and they do not do enough therapy.”

This is one area where the robots are stepping in to fix human problems. Dr. Riener introduced the different machines that are currently being used in rehabilitation, such as the ARMin, the arm rehabilitation robot, and the SMS Exosuit, which integrates technology into clothes to improve patients’ movements.

“Such robotic devices can help the patients to do more efficient training and get back to life with a higher quality,” he said. These kinds of robots would be especially useful for the current society, which has an increasing aging population.

Hiroshi Ishiguro, Professor at Osaka University who is famous for making a doppelgänger android of himself, also demonstrated the abilities of the Geminoid F, which can respond to human behaviors and hold conversations.

“We can just forget that she’s an android, because she’s so human-like,” he mused. “If we spend more time, I think we can improve more and more, and then we may have a better robot society.”

The advances in robotics are steadily underway. There are many ambitions and visions for the robotic future, but there are also many challenges and hurdles to be addressed.

The key challenge in building more human-like robots will be making them capable of adapting to the environment without specific orders or input. Currently, the available research and resources are insufficient to achieve this goal.

“The robots that we dream of cannot be born because motions have to be taught one by one right now,” said Il Hong Suh, Professor at Hanyang University. “The robot has to be able to find the glass and [put] the water in the glass.”

Dr. Ishiguro agreed. “Humans have brains that recognize humans,” he said. “The ideal interface for humans is humans. We don’t need to have any manuals.”

There are also many people who are not comfortable with the idea of robots that are too similar to humans.

“It depends a lot on the countries,” said Dr. Riener. He pointed out that in Korea and Japan, more human-like

robots are possible because the people want it, while Europeans are less inclined and even frightened by the prospect.

With the rapid development of the personal computer and smartphone, it seems like the next big breakthrough will be interactive robots.

“Almost all the technology is there,” said Dr. Ishiguro. “Near the future, I think we will definitely see more robots, [and a] robot society.”

Dr. Riener believes, however, that it will take at least three hundred years for robots to become more intelligent than humans. “Machines are still too far away from this.”

Dr. Suh, on the other hand, believes that we are closer. But there are many difficulties and circumstances to be resolved. “The intelligence required for these robots will definitely be possible in the future, but I can’t say when,” he said.

Dr. Ishiguro had a surprising opinion regarding whether robots could become superior to humans.

“Never, ever,” he said, asserting that no matter how advanced the robotics industry becomes, humans will always possess superior intelligence.

“Nobody knows what intelligence is,” Dr. Ishiguro added. “We never clearly define human intelligence. Is it to memorize something? [Then] the computer is better than humans already in that sense.”

In order for robots to be on par with humans, it doesn’t only need skill-based intelligence, but general intelligence. And Dr. Ishiguro believes that humans are more adept in that context, and the concept is too complicated.

However, he does believe that the robot age is very close, and envisions an optimistic future in which interactive robots can help and assist people. He wants robots to become integrated into everyday life.

“Robots will be our partners,” he said.

The limits of technology have prevented artificial intelligence from thinking freely for itself. There are many uncertain answers, and much more research and development to be done. But for now, the world can be comfortable knowing that robots are contributing positively to humankind and hold no threats at the present time.

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