



SCIENCE & TECHNOLOGY

Japanese Researchers Develop Wearable Robot Arms

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A team at Tokyo University is developing robotic arms that people can wear. The devices could find use in areas from creative expression to search and rescue operations.

Masahiko Inami is a professor who develops systems to expand human abilities. Inami's team at the University of Tokyo is designing the wearable robotic arms.

The team is developing a series of technologies rooted in the idea of "jizai." It is a Japanese idea that he says roughly means the **autonomy** and the freedom to do as one wants.

The aim is to create something like the relationship between a musician and an instrument. Inami said, "Lying somewhere between a human and a tool, like how a musical **instrument** can become as if a part of your body."

Inami says the idea came to him when he thought of traditional Japanese **puppetry** and a short story by Yasunari Kawabata. The story is about a young man who borrows a young woman's right arm.

Inami said the robotic device is "not a **rival** to human beings, but rather something that helps us do as we please." He added that it was "like a **bicycle** or e-bike. It supports us and can unlock creativity."

A video called *JIZAI ARMS* shows two dancers performing with the robotic arms on their backs. The humans and machines move together in the performance. The dancers come together and move in similar ways either leading or following the robot arms.

Inami said some wearers grow attached to the arms after some time. "Taking them off after using them for a while feels a little sad. That's where they're a little different to other tools," he said.

But Inami added that the possibilities for the robot arms go beyond turning a short story into real life. He said such machines could help in search and rescue operations.

He wondered if similar devices could be used to fly or perform sports in the future.

"In the future we might see wings growing out of people's backs, or **drones** attached to people...Maybe someone will come up with a sport that requires six arms or invent a new type of swimming," Inami said.

I'm Jill Robbins.

Anton Bridge and Tom Bateman reported this story for The Associated Press. Gregory Stachel adapted it for VOA Learning English.

Words in This Story

autonomy – *n.* the state of existing or acting separately from others

instrument – *n.* a tool or device used for a particular purpose

puppetry – *n.* the skill or activity of using puppets in performances

rival – *n.* a person or thing that tries to defeat or be more successful than another

bicycle – *n.* a two-wheeled vehicle that a person rides by pushing on foot pedals

drone – *n.* a type of small aircraft that flies without a pilot

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