

## A good robot has personality but not looks

**R**OBOTS are poised to enter our homes, schools and hospitals as cleaners, educational aides and medical assistants. So how can designers ensure we make the most of our robotic helpers?

Two new studies suggest robots need to act more like humans, but not look too much like us, if we are to accept them into our lives.

Maja Mataric and Adriana Tapus at the University of Southern California in Los Angeles found that a robotic therapist had more influence if its personality mirrored that of its human patient.

During the three months after a stroke, people whose limbs have been paralysed have the potential to regain some function if they exercise for around 6 hours a day. But without support they can quickly become discouraged, and in the US patients receive on average only half an hour of human supervision a week. So Mataric designed a talking robot that reminds people to exercise, monitors their movements via a motion sensor attached to their arm and, depending on how they respond, praises them or coaxes them to do more.

Mataric noticed that the way patients interacted with the robot depended on their personality - some would play games with it or take it for walks, others simply obeyed its commands. This gave her the idea to create a robot with a "personality" that can be tuned to be more or less extrovert, depending on its patient. In its extrovert mode the robot speaks faster and louder, stands closer to the patient and uses phrases such as: "You can do more than that, I know

it!". As an introvert, it moves and talks less and uses softer language.

The robot coached 12 healthy volunteers through exercises including drawing, lifting books, moving pencils and turning the pages of a newspaper - once with its extroversion level tuned to the user and once with a random level. Mataric and Tapus found that volunteers spent more time on tasks when coached by the robot that matched their personality. They plan to test the robot on stroke victims later this year.

In the looks department, however, mimicking humans might not be as helpful. When Sarah Woods at the University of Hertfordshire in Hatfield, UK, showed 159 schoolchildren 40 pictures of robots, she found that they tended to class the most human-like ones as "aggressive" but those with exaggerated, cartoonish features as "friendly". The study, to be published in the journal *Interacting with Computers*, fits with a hypothesis made by Japanese researchers in the 1970s that people find robots more likeable the more human they look, but only up to a point - once they become too lifelike, they become frightening (see Graph).

That doesn't matter, says Sherry Turkle, who studies robot-human interaction at the Media Lab of the Massachusetts Institute of Technology. "Success isn't getting a robot to look like a person. Success is getting a fluid interaction while doing something that is useful," she says.

—Celeste Biever

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