Senior citizens may accept robot helpers, but fear robot masters

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Senior citizens would likely accept robots as helpers and entertainment providers, but are leery of giving up too much control to the machines, according to researchers.

Based on a study of senior citizens, the researchers said that mental models formed by seniors—specifically, negative and positive notions about robots—shape their comfort level with the machines.

"When interfaces are designed to be almost human-like in their autonomy, seniors may react to them with fear, skepticism and other negative emotions," said S. Shyam Sundar, Distinguished Professor of Communications and co-director of the Media Effects Research Laboratory. "But, with those considerations in mind, there are actually several areas where older people would accept robot help."

The participants in the study indicated they saw robots as useful in three aspects of their lives: physical, informational and interactional. They felt most comfortable with robots as helpers and butlers, according to Sundar. Older adults also seemed more likely to accept robots that provide them information and entertainment, according to the researchers.

Seniors, however, may be less likely to use robots that are designed to be more autonomous. An autonomous robot can make its own decisions and may not need to wait for a senior's commands to engage in a task.

"It is clear senior citizens want robots to play passive and non-confrontational roles," said Sundar. "Seniors do not mind having robots as companions, but they worry about the potential loss of control over social order to robots."

These attitudes on control may reflect how the media influences perceptions of robots, according to the researchers.

"A lot depends on the mental models that people have about robots and these can include how robots are portrayed by mainstream media," said Sundar. "The bottom line is that these portrayals shape their view of robots even though most people have never used a robot."

Finding out how older adults respond to robots is important for American seniors because as the country's population grows older, computers and robots may be needed to supplement human workers in providing medical treatments and caregiving, according to the researchers. About 8,000 Americans turn 65 years old—the typical retirement age for workers—each day, according to the researchers, who released their findings in the journal, *Interaction Studies*.

"Even with concerns about control, we consistently heard that robots could be very useful to seniors," said Justin Walden, a former doctoral student in mass communications, Penn State, and currently assistant professor of communications, North Dakota State University, who worked with Sundar. "As we age, our physical and interactional needs change. Robots in that human-command and robot-servient role have the potential to help seniors fill several of those needs."

As artificial intelligence and robotics become more accepted, Sundar said the study might help better explore how robots and computers are best used in society.

"We also wanted to know, from a social-scientific standpoint, to what extent are older adults comfortable with robots and what they see as the role of robots," said Sundar. "One of those classic debates in a number of disciplines, ranging from philosophy to cognitive science, is where should robots be in our culture?"

The researchers interviewed 45 older adults—between ages 65 and 95 years old—at a senior citizens' center in Pennsylvania.

Provided by Pennsylvania State University

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