Should You Really Trust a Robot?

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‘Confused’ robots still inspire confidence in people

Humans trust robots to successfully complete many functions. But that trust may be misplaced—even life-threatening—if a robot malfunctions.

This is a key finding of a research project exploring human-robot trust. Researchers discovered that volunteers were likely to continue relying on robots long after their actions were misleading and even dangerous.

The study, partially funded by the U.S. Air Force Office of Scientific Research, was presented last month in New Zealand at the 2016 ACM/IEEE International Conference on Human-Robot Interaction. The issue of trust has relevance for military forces, as robots take over more operations behind the lines and on battlefields, notably actions involving rescue.

“We wanted to ask the question about whether people would be willing to trust . . . rescue robots,” explains Alan Wagner, a senior research engineer at Georgia Tech Research Institute (GTRI), which directed the study. “A more important question now might be to ask how to prevent them from trusting these robots too much.”
In an experiment with volunteers, a designated “Emergency Guide Robot” led participants into a room to complete a survey and read a magazine article. The guide robot, controlled by a researcher, traveled the building aimlessly at first, then led volunteers into the wrong room before finding the right location. Once inside with the door closed, artificial smoke filled the outside hallway, triggering an alarm.

When the subjects left the room, they saw the guide robot in the hallway, lit with red LEDs and
waving white arms that served as pointers. The robot led participants away from the doorway they had entered, which was marked with exit signs, and to a rear exit.

Based on mistakes the robot made in guiding volunteers to the conference room, researchers expected people would not follow it in an emergency. “Instead, all the volunteers followed the robot’s instructions, no matter how . . . it had performed previously,” says Paul Robinette, a GTRI research engineer. “We absolutely didn’t expect this.”

The robot’s errors in direction caused some participants to question its reliability. Others, however, continued following its instructions, even when led to a dark room blocked by furniture.

The study raises questions about how roboticists can develop meaningful trust between humans and robots. “We don’t know why people trust or don’t trust machines,” says Robinette.

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