

We use cookies to provide you with a better onsite experience. By continuing to browse the site you are agreeing to our use of cookies in accordance with our [Cookie Policy](#).

SUBSCRIBE

SCIENTIFIC
AMERICAN®

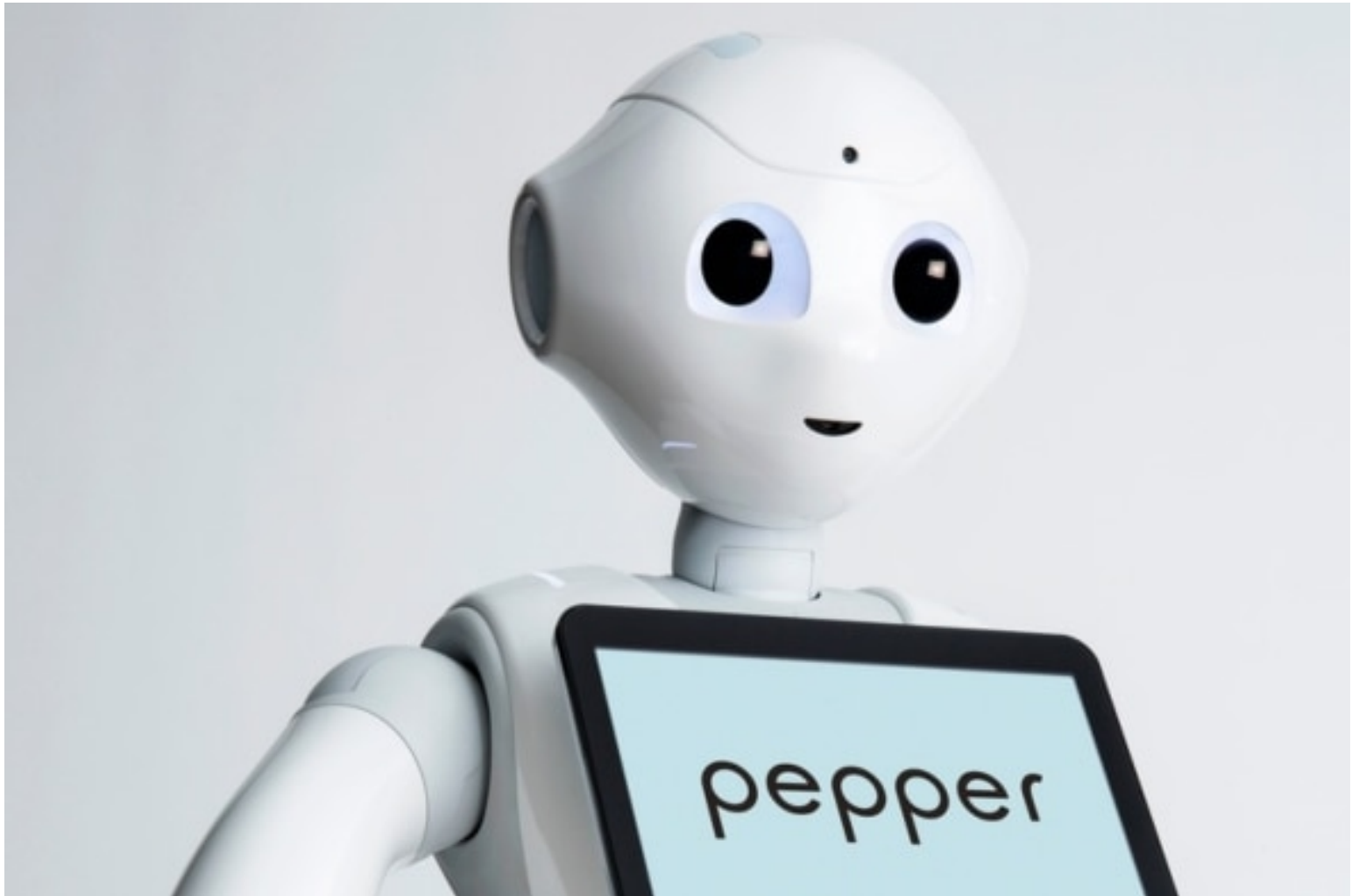
English Cart
Sign In | Register

ENGINEERING

Grandma's Little Robot

Machines that can read and react to social cues may be more acceptable companions and caretakers

By Catherine Caruso on May 22, 2017



IBM researchers are adapting a version of the SoftBank Robotics robot “Pepper” that can answer health questions and check vital signs. *Credit: SoftBank Robotics*

Robots already perform many traditionally human tasks, from vacuuming to surgery—and they could soon help care for the sick and elderly. But until they can convincingly discern and mimic emotions, their caretaker value will be severely limited. In an effort to create “friendlier” machines, researchers are developing robotic helpers that can better read and react to social signals.

In late 2016 IBM and Rice University unveiled the Multi-Purpose Eldercare Robot Assistant (MERA), a customized version of the Pepper robot developed by SoftBank Robotics in Japan. Pepper, an ivory-colored android about the height of a seven-year-old, can detect and respond to human emotions via vocal cues and facial expressions. It has already been deployed as a friendly assistant in Japanese stores and homes. MERA, specifically designed as an at-home companion for the elderly, records and

analyzes videos of a person's face and calculates vital signs such as heart and breathing rates. MERA's speech technology, originally developed for IBM's Watson (the artificial intelligence system that won *Jeopardy*), allows it to converse with a patient and answer health questions. "It has everything bundled into one adorable self," says Susann Keohane, founder of IBM's Aging-in-Place Research Lab

Robotist Maja Matarić and her colleagues at the University of Southern California are taking a different but complementary approach to developing social machines. They are designing robots that tap into human social dynamics to help seniors help themselves. "What we found is people really need help with motivation" to do necessary tasks, she says. "So we created the field of socially assistive robotics: machines that help people through social, not physical, interaction." For elderly individuals, such assistance comes in various guises—from coaching them in physical therapy to helping them socialize with friends and family.

Matarić and her team recently tested Spritebot, a one-foot-tall green owl robot that helps seniors play games with their children or grandchildren. The researchers found that people talked to one another more and played games longer when Spritebot was participating in, and moderating, their interactions.

	SHARE	LATEST
--	--------------	---------------

encourage them to form healthy habits, such as walking more. Matarić hopes that monitoring how people interact with companion robots over time will inform her team about both habit formation and the dynamics of the human-robot bond.

The need for socially assistive robots may arise from a shortage of human companions for the elderly, but Matarić points out that robots may also offer some benefits over their flesh-and-blood counterparts. "Machines are infinitely patient," she explains. "They have [fewer] biases to begin with, and they have no expectations."

[Rights & Permissions](#)



ADVERTISEMENT |

ABOUT THE AUTHOR(S)

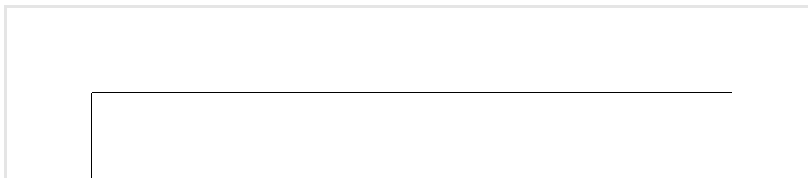
Catherine Caruso

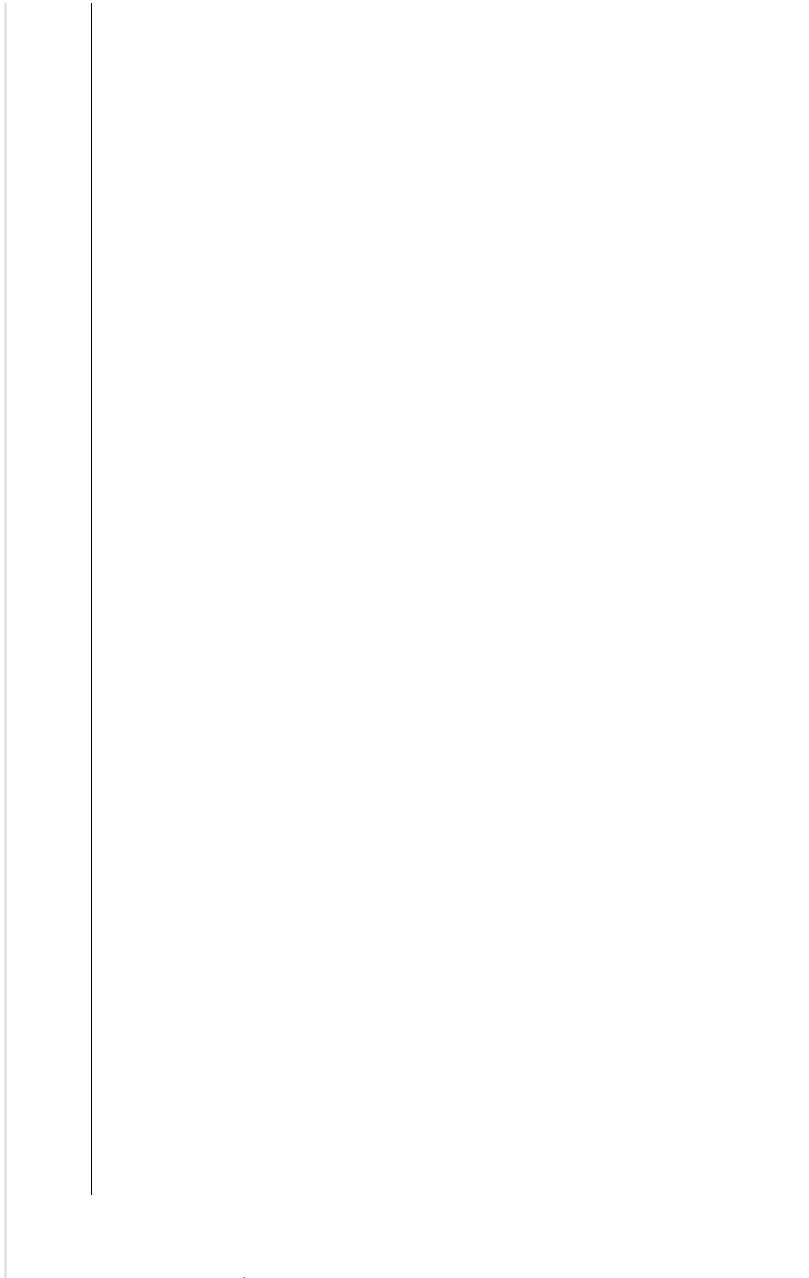
Recent Articles

Drunk Mice Get the Munchies

A New Theory for Why Killer Whales Go Through Menopause

Good Relationships Are All in the Family





ADVERTISEMENT |

READ THIS NEXT



How to Build an Empathetic Robot





Automaton, Know Thyself:
Robots Become Self-Aware



Intelligent Robots Must
Uphold Human Rights



Scientists Send Robots to
Charm School

NEWSLETTER

Get smart. Sign up for our email newsletter.

SIGN UP

*Every
Issue.
Every
Year. 1845 -
Present*

Neuroscience. Evolution.
Health. Chemistry.
Physics. Technology.

SUBSCRIBE
NOW!



FOLLOW US

Store	FAQs	Advertise	Terms of Use
About	Contact Us	Special Ad Sections	Privacy Policy
Press Room	Site Map	SA Custom Media	Use of Cookies

Scientific American is part of Springer Nature, which owns or has commercial relations with thousands of scientific publications (many of them can be found at www.springernature.com/us). Scientific American maintains a strict policy of editorial independence in reporting developments in science to our readers.

© 2017 SCIENTIFIC AMERICAN, A DIVISION OF NATURE AMERICA, INC.

ALL RIGHTS RESERVED.