

Not Tonight, Dear, I Have to Reboot

Is love and marriage with robots an institute you *can* disparage? Computing pioneer David Levy doesn't think so—he expects people to wed droids by midcentury. Is that a good thing? **BY CHARLES Q. CHOI**

At the Museum of Sex in New York City, artificial-intelligence researcher David Levy projected a mock image on a screen of a smiling bride in a wedding dress holding hands with a short robot groom. “Why not marry a robot? Look at this happy couple,” he said to a chuckling crowd.

When Levy was then asked whether anyone who would want to marry a robot was deluded, his face grew serious. “If the alternative is that you are lonely and sad and miserable, is it not better to find a robot that claims to love you and acts like it loves you?” Levy responded. “Does it really matter, if you're a happier person?” In his 2007 book, *Love and Sex with Robots*, Levy contends that sex, love and even marriage between humans and robots are coming soon and, perhaps, are even desirable. “I know some people think the idea is totally outlandish,” he says. “But I am totally convinced it's inevitable.”

The 62-year-old London native has not reached this conclusion on a whim. Levy's academic love affair with computing began in his last year of university, during the vacuum-tube era. That is when he broadened his horizons beyond his passion for chess. “Back then people wrote chess programs to simulate human thought processes,” he recalls. He later became engrossed in writing programs to carry on intelligent conversations with people, and then he explored the way humans interact with computers, a topic for which he earned his doctorate last year from the University of Maastricht in the Netherlands. (Levy was sidetracked from a Ph.D. when he became an international master at chess, which led him to play around the world and to found several computer and chess organizations and businesses.)



DAVID LEVY

I DO: Predicts the first place to legalize marriage with robots will be Massachusetts, where liberal jurisdiction and high-tech research meet.

NO FANTASY: Despite his thinking about robot love, he is not a fan of science fiction: “The only sci-fi book I ever read was as a favor to a publisher who wanted a quote from me on the back cover, but the book was so dreadful that I couldn't support it.”

Over the decades, Levy notes, interactions between humans and robots have become increasingly personal. Whereas robots initially found work, say, building cars in a factory, they have now moved into the home in the form of Roomba the robotic vacuum cleaner and digital pets such as Tamagotchis and the Sony Aibo.

And the machines can adopt a decidedly humanoid look: the robot Repliee from Hiroshi Ishiguro, director of Osaka University's Intelligent Robotics Laboratory, can fool people into believing that it is a real person for about 10 seconds from a few feet away. And “it's just a matter of time before someone takes parts from a

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vibrator, puts it into a doll, and maybe adds some basic speech electronics, and then you’ll have a fairly primitive sex robot,” Levy remarks.

Science-fiction fans have witnessed plenty of action between humans and characters portraying artificial life-forms, such as with Data from the *Star Trek* franchise or the Cylons from the reimagined *Battlestar Galactica*. And Levy is betting that a lot of people will fall in love with such devices. Programmers can tailor the machines to match a person’s interests or render them somewhat disagreeable to create a desirable level of friction in a relationship. “It’s not that people will fall in love with an algorithm but that people will fall in love with a convincing simulation of a human being, and convincing simulations can have a remarkable effect on people,” he says.

Indeed, a 2007 study from the University of California, San Diego, found that toddlers grew to accept a two-foot-tall humanoid robot named QRIO after it responded to the children who touched it. Eventually the kids considered QRIO as a near equal, even covering it with a blanket and telling it “night night” when its batteries ran out. “People who grow up with all sorts of electronic gizmos will find android robots to be fairly normal as friends, partners, lovers,” Levy speculates. He also cites 2005 research from Stanford University that showed people grew to like and trust computer personalities that cared about their wins and losses in blackjack and were generally supportive, much as they would respond to being cared about by other people.

The modern age of telecommunications has already made it possible to fall in love without ever having met face to face, Levy adds. “So many people nowadays are developing strong emotional attachments across the Internet, even agreeing to marry, that I think it doesn’t matter what’s on the other end of the line,” he says. “It just matters what you experience and perceive.”

Based on what researchers know about how humans fall in love, human-robot connections may not be all that surprising.

Rutgers University biological anthropologist Helen Fisher, renowned for her studies on romantic love, suggests that love seems dependent on three key components: sex, romance and deep attachments. These components, she remarks, “can be triggered by all kinds of things. One can trig-



**ROBO NUPTIALS: David Levy thinks that
human-robot marriages are inevitable.
Others find the prospect ludicrous.**

ger the sex drive just by reading a book or seeing a movie—it doesn’t have to be triggered by a human being. You can feel a deep attachment to your land, your house, an idea, a desk, alcohol or whatever, so it seems logical that you can feel deeply attached to a robot. And when it comes to romantic love, you can fall madly in love with someone who doesn’t know you exist. It shows how much we want to love.”

Still, both Fisher and Levy agree that many if not most humans will continue to love and have sex the old-fashioned way. “But I think there are people who feel a void in their emotional and sex lives for any number of reasons who could benefit from robots,” Levy states. He cites a Massachusetts Institute of Technology student dubbed “Anthony” in M.I.T. psychologist Sherry Turkle’s book *The Second Self*, which explores human-computer interactions. Anthony tried having human girlfriends but preferred relationships with computers. Levy says that he dedicated his book “to ‘Anthony’ and all the other ‘Anthonys’ before and since of both sexes,

to all those who feel lost and hopeless without relationships, to let them know there will come a time when they can form relationships with robots.”

Whether those bonds are emotionally healthy, however, is debatable. As Turkle puts it: “If you are lonely but afraid of intimacy, relationships with machines can enable you to be a loner yet never alone, give you the illusion of companionship without the demands of friendship. There is nothing to celebrate here. To me, the seductiveness of relationships with robots speaks to what we are not getting from people.”

Instead of throwing robots at social problems, Turkle feels humans should do the job. “What people like Anthony need are experiences that will increase their repertoire for dealing with the complexity and challenges of relationships with people,” she explains. Levy contends that there are not going to be enough people to handle social concerns such as loneliness or care for the elderly, but Turkle dismisses the idea: “If we paid people to take care of the elderly in the way we invested in other things, this wouldn’t be an issue.”

Both Fisher and Turkle find the idea of legal human-robot marriages ridiculous. But Levy counters that “if you went back 100 years, if you proposed the idea that men would be marrying men, you’d be locked up in the loony bin. And it was only in the second half of the 20th century that you had the U.S. federal government repealing laws in about 12 states that said marriage across racial boundaries was illegal. That’s how much the nature of marriage has changed.”

As to what Levy’s wife thinks, he laughs: “She was totally skeptical of the idea that humans would fall in love with robots. She’s still fairly skeptical.” A reasonable reaction—then again, a Stepford wife with contrariness programmed into her would say that, too. ■

Charles Q. Choi is a frequent contributor. A Q&A version of his interview with Levy is at www.SciAm.com/ontheweb

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