Nanto City, Japan, is facing a challenge that’s typical of cities across the country. The city has a large (and growing) elderly population and a shortage of younger people to care for them. But Nanto City is approaching this problem in an unusual way. Over the course of 12 years, and at a cost of $10 million, Japan’s National Institute of Advanced Industrial Science and Technology has developed a robotic animal—a baby seal named Paro—to help ease the burdens of Nanto City’s older residents. Some of these people not only struggle with physical illness but also with feelings of sadness, loneliness, and isolation.

By all accounts, Paro is helping. Informally, nurses report that a few elderly patients treat Paro like a family pet, covering him with blankets and trying to feed him snacks. A more formal study by Dr. Takanori Shibata, Paro’s creator, discovered a 50% increase in brain activity in certain patients after spending 20 minutes with the seal.

And seals are not the only robotic animals making an impact. Senior citizens who spent time with Aibo, a robotic dog whose name means “pal” in Japanese, played with him and told him their thoughts and feelings. Some treated him much like a real, live dog. Though there have been few formal scientific studies to date, those that have been conducted point to a number of benefits of robotic pets. These include lowered stress levels and increased happiness. One study at the University of Missouri revealed that levels of cortisol, a stress hormone, fell in adults when they patted Aibo.

Other robot animals can act as guides for people with vision problems, detect fires and rescue people, and assist military troops. These are the robot “working animals.” But some robot animals exist purely for amusement. These robo-pets are, to put it simply, fun. There are baby chickens that chirp and kittens that purr. Many robo-pets behave like babies and “grow up” under the delighted eyes of their owners. Some, like Pleo, a cuddly dinosaur, learn new tricks and change their behaviors as appropriate for their “age.” As one happy customer on Amazon.com explained, “The little critter is the cutest creature I’ve ever seen... He’s a baby dinosaur that’s warm-hearted, gentle and really strikes a chord with all who meet him.”

Remarkably, these robo-pets seem to develop their own, unique personalities. Some scientists call these animals “social robots.” Their existence is possible, in part, because scientists have begun to learn more about how the human brain learns and responds, and to apply this knowledge to the rapidly changing field of robotics. Thus the robo-pets are becoming ever more realistic—and engaging. Scientists have known for years that real dogs, cats, and other pets can do a lot to improve people’s lives. Now they’re finding out that robotic pets can trigger the same feelings of well-being and affection that real animals can. Though robo-pets aren’t cheap—it cost $10 million to develop Paro—the many benefits they offer may soon outweigh the costs. And they never shed, or need to be cleaned up after, or demand to be taken outside for a walk!
“Love In the Time of Robots”

by Frank Mullin

Just as the sun will rise tomorrow morning, so too will robots rise in our society. This is not to say that robots will soon become our evil overlords, no matter what they say in the movies. Rather, robots are rising in their use and usefulness. For decades we have built our robots to perform the three Ds: things that are too dull, dirty, or dangerous for us to do. In many ways, we are now dependent on robots. But now, there is a relatively new area in which robots are making advances—into our hearts.

One of the strongest bonds many people have is with their pets. Given the complexity of emotions involved in such relationships, it seems unlikely that a robotic pet could ever truly replace a biological one. But robotic pets are becoming increasingly affordable and lifelike. They can be soft and cuddly. They can respond appropriately to a loving stroke or a sharp voice command. As the technology of robotic pets improve, so too will their abilities to interact. For many people, robotic pets may seem to offer all of the pros with none of the cons of biological pets. And that may just be the problem.

Humans have long shown the ability to bestow love upon inanimate objects. Ask yourself if you have ever loved a car, or your laptop computer, or a teddy bear. Viewed in that regard, it is not difficult to imagine feeling the same love for a robotic pet. After all, a the owner still feel pride, knowing in the back of her mind that that aloofness was coded into the cat by some computer programmer?

There are, however, some people who may not be aware of the computer programmer’s hand: children. Kids love their stuffed animals, so it makes sense that they would love robotic pets even more if those pets seemed to love them back. Again, though, the trouble here lies in the simulation of love. In 2001, Sherry Turkle, a professor at the Massachusetts Institute of Technology, performed an experiment where children were observed interacting with a robot. On one occasion, the robot malfunctioned and the subject, a young girl, assumed that the robot no longer liked her. The girl became sad and withdrawn. “Can a broken robot break a child?” Turkle wrote in her book Alone Together. “We would not consider the ethics of having children play with a damaged copy of Microsoft Word or a torn Raggedy Ann doll. But social robots provoke enough emotion to make this ethical question feel very real.”

No matter how lifelike a robotic pet may seem, it is still just a technologically advanced machine. Numerous research studies have found that advanced technologies, such as mobile phones and the Internet, often lead to social isolation. It is not hard to imagine that a very lifelike robotic pet, while providing an elderly woman with comfort and companionship, might also cause that woman to isolate herself from human interaction. As one commenter noted in an online forum on robots, “In a few years we’ll never have to leave the house!”

Finally, there is the matter of responsibility. Many children get their first experience with responsibility by caring for a pet. Biological pets have real needs, the neglect of which holds very real consequences. But what does a child learn about responsibility when the only need her robotic dog has is to be recharged occasionally? What lesson is learned if, when a child gets bored with his pet, he can stuff it in the back of his closet and forget about it? Tomorrow the sun will rise, and with it, more people will rise to greet their robotic pets. This may or may not be a bad thing. But before the robotic dog takes its place as man’s new best friend, it might be worthwhile to ask whether giving love to something that cannot love you back is truly a friendship at all.