

# The Robots Have Landed

## What new technology lies in our high-tech pets?

**D**id you get any high-tech presents over the holidays? Gadgets that can be fun and actually useful seem to be everywhere these days. So why not take a quick look into the gadgetry that embraces the latest emerging technology and may even depend on it?

### Man's Best Artificial Friend

While computers, personal digital assistants (PDAs), Wi-Fi widgets, blue-toothed communicators and do-all cell phones are in vogue, I will focus on personal pets that can think, sense, communicate, act and learn. While we do not have R2D2 yet, and the Robovac is not much of a companion, Sony's AIBO, the star of the robo-pet world, is a good start for the more sophisticated level of species. AIBO, the Artificial Intelligence roBOt (the word also means "companion" in Japanese), is not only a bright pooch, but is easily trainable—unlike some of the bio-based pets. Once trained, no two dogs are alike because of their unique childhood experiences.

The product is classified as an entertainment robot, but the dog is willing to work. It can fetch and someday will be able to read to you. While entertainment robots are not new, this multi-tasking mutt contains some leading-edge technology. Microelectromechanical systems (MEMS) help it gauge and control its movements, driven by 16 motors. The dog also senses vibrations, so it might be a handy pal to have in the quake zones. Tiny two-axis accelerometers give its silicon brain feedback so it does not display jerky motion that a pet of Dr. Frankenstein might.

### Sit, Fetch, Read Email?

The Sony developers are not resting on their haunches. A third-generation digital doggy is ready to take home so you can have the best bot on the block, definitely the top dog in its class. The new ERS-7 is complete with a wireless local area network (Wi-Fi; IEEE 802.11B). And it has its own email. Send the pet a message, and it can personally deliver it—vocally. The super dog understands over 100 words and phrases

and recognizes the owner's voice and face. Its brain is a 64-bit RISC central processing unit and it has tactile sensors, so do not rub it the wrong way.

Raising the ERS-7 from puppy to adult takes six weeks, but for those with no time or patience, you can fast-forward to adult with a plug-in card. You can also get plenty of mind-modifying cards. The new dog uses some older technology, too. ERS-7 has 45 light-emitting diodes (LEDs) in multiple colors; most are used to mimic facial expressions. When it gets tired, the dog looks around to find its energy station, walks over and plugs in by laying down on electrical contacts. Just think of the possibilities of its true visual recognition.

But could your net-linked pet be hacked? Much simpler robotic pets with software-based persona have been hacked (mostly by owners), and tips can be found on the web. Do not worry; the dogs have not eaten homework—yet! Also, keep a look out for Nanotech fleas that will likely be announced under the National Nanotechnology Initiative. Seriously, be sure to watch out for the radio frequency-based hackers that might even be cats.

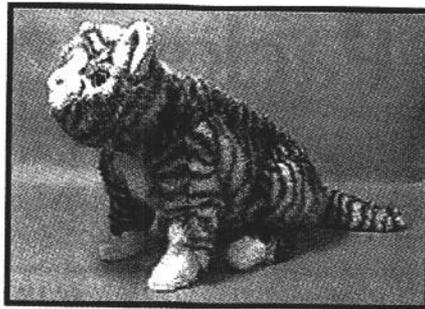
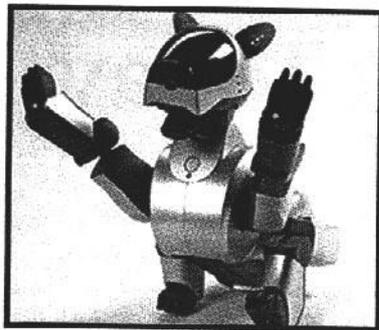
### The Truth About Robo Cats and Dogs

So the dog is a cool canine, but what if you do not like dogs? Robotic cats are here, too. Crafted along similar lines, the full-featured felines are doing well. Thanks to a fur coat, they actually look like cats. The charismatic cat must also be trained, has sensors to feel you petting and will purr. They are lovable and friendly to reg-

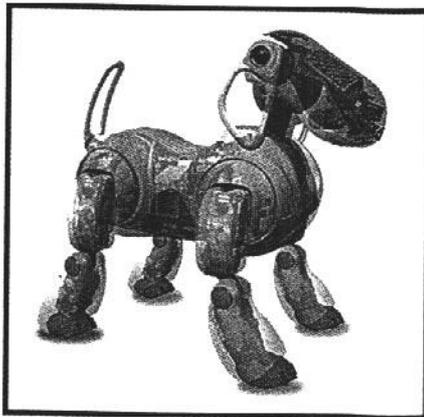
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Clockwise from top left: the trainable AIBO from Sony; Tama, a robotic cat, from Omron; and Sony's see-through model pet dog (which is not available for sale).

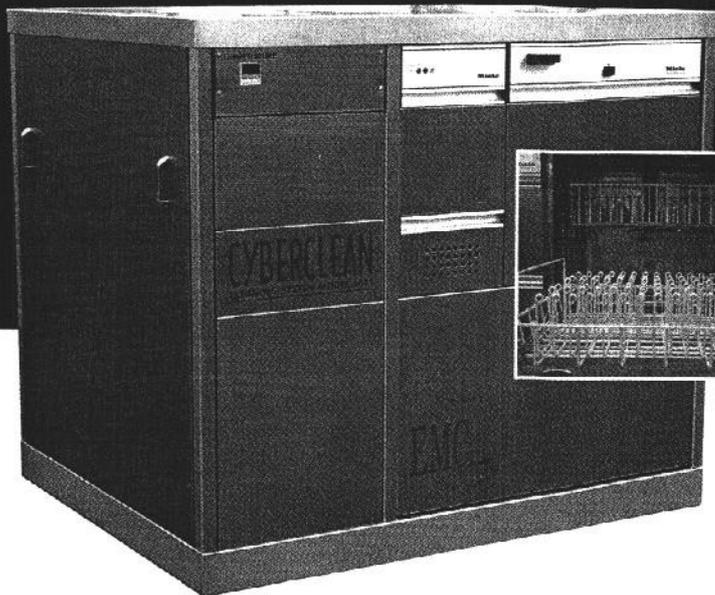


istered owners, but do they like the dogs? No one is saying, and compatibility may be more about upbringing than genetic (or digital) code. Sooner or later, we will find out.

So, if you see a news-break about fur flying, LEDs flashing and chips smoking, it could be the inevitable robo-pet free-for-all. Perhaps their artificial intelligence leaves out the fighting instinct. They just might get along in peace and harmony to set an example for us humans. And, if that is true, we could sure use them in a lot of places around the world. ■

*Author's Disclaimer: My meager attempt at humor is not meant to ruffle any feathers. Pun intended.*

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