

## The MIT Media Laboratory



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# InterPet Explorer

## Building Interactive Environments for Grey Parrots



Games for humans are designed by observing naturally occurring behaviors and recreating them in a synthetic environment. It's no different with parrots. We design software and hardware based on our understanding of animal behavior. Therefore, our creations are more than just pet toys, but tools for gaining insight into animal minds and motivations.

We are still in the early phases of this research. We have constructed a "smart perch", complete with controller, 17" LCD screen, speakers and webcam. This perch will serve as a hardware platform upon which we will add iterations of software.

We are not trying to teach the bird how to "surf the net". We are trying to give these birds a set of tools for interacting with their environment.

Previous work by Dr. Pepperberg with CRT screens demonstrates birds can recognize artificially rendered images. LCD screens, because they are flicker-free, should provide an even higher degree of clarity to avian eyes.

### Some software applications we are developing for the birds:

- Video and music browser
- Acoustic mirror
- Four note musical instrument
- Image / Video feeds – including live video feed from wild parrots
- Interactive puzzles and mazes
- Colorful kaleidoscope
- Tools for remote interaction with owner.

### About Wart

Wart is a 2 year old African Grey parrot. His full name is Arthur, but we call him Wart after the nickname Merlin gave the young King Arthur in "The Once and Future King". He is on loan to the lab from Kim Gaudette. Although parrot gender is difficult to determine and often requires DNA testing for certainty, Wart is believed to be a male. Grey Parrots mate for life and can live to be 60 years old.



### How can technology improve the lives of companion animals and their "pet humans"?

We choose companion animals that are naturally social. When these animals are isolated all day they typically exhibit behavioral problems. The Media Lab has a tradition of spreading technology to the poor and geographically remote. There is no reason not to include animals in this outreach.

### What do we hope to accomplish?

Research on animal-computer interfaces forces us to question assumptions made during development of human-computer interfaces and may inform our designs for hardware and software for humans, especially for children: Like children, parrots do not read or write, have a limited vocabulary, are social creatures, and suffer if isolated.

By revisiting the issue of computer interfaces through the mindset of an animal, we engage in a design exercise that questions our assumptions about how brains and computers interact.



### Why are we optimistic about results?

Grey parrots live in elaborate social groups in the wild and thus naturally seek other living creatures as companions, whether bird or human. We suggest that intrinsically social, intelligent animals such as parrots—if given appropriate tools—may, like humans, learn to augment the expression of their natural behaviors and play patterns through synthetic devices.

### Why are computer scientists working with animals?

The Synthetic Characters group, headed by Prof. Blumberg, uses models of animal behavior to create believable autonomous characters that do the right thing in the right situations. Dogs, with lemon-sized brains, navigate their world successfully and thrive in a complex environment. How do they do this? Can we insert this intelligence into our computer characters?

We seek to understand animals in their natural complex social environments rather than by learning about them only through psychology textbooks and research papers describing reactions to laboratory conditions. Working directly with live animals and animal trainers, we maintain firsthand contact with the roots of our autonomous systems.

