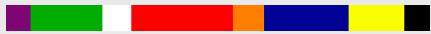
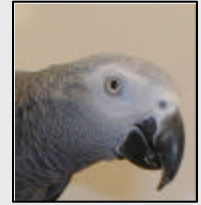


## The MIT Media Laboratory



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# Parrot Digital Assistant



## Building Interactive Environments for Grey Parrots

We have given Wart a four-position joystick and mode selector that he can use to choose pictures or music. The initial goal is not only to allow him to pick his screen wallpaper or select tunes from a jukebox, but also to teach him that use of the controller will change his environment. Once he learns how his interactions with this lucite box affect his environment, he will be able to interface with any software we develop.

### Some application software we hope to develop for Wart include:

- Interactive chat with humans, other parrots, or even other species
- One or multiple player video games
- Four note musical instrument
- Image / Video feeds – including live video feed from wild parrots
- Allow Wart to change color balance of a tetrachromatic LCD Monitor –insight into ocular physiology
- Make music selections
- Use “currency” to request (“shop”) for objects and foods, possibly using a sound recognition system

### These applications may have outcomes relevant to parrot behavior. We may be able to:

- Examine a parrot’s motivation for interacting with computers. We do not force Wart to use his electronics. He does not receive his basic food allotment by using his interface. We show him how the tools work and let him decide a course of action. His motivation for using the setup are intrinsic rewards of interaction, problem solving, entertainment, and diversion – much the same as for human computer users.
- Compare the initial face-to-face relationship of birds that have never met with birds that have met only online. Does a difference exist in their interactions? Has the online relationship facilitated the physical relationship? What training does a bird need to be able to successfully interact online?

### 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.



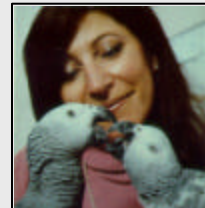
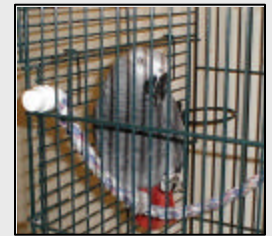
### How can technology improve the lives of companion animals?

The Media Lab has assisted humans traditionally left out of the technology umbrella--the impoverished, geographically remote, and particularly the young. We are now researching how technology can improve the lives of our nonhuman companions. Substitute the word “animal” for “child” in many contexts, and you have another viable research agenda.

### What can we hope to accomplish?

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

We also wish to enhance human-companion animal interaction. Many companion animals, social by nature, left alone in homes (particularly small apartments) while their owners are at work, begin to exhibit behavior problems. Such problems often lead to a breakdown of the animal-human bond. Computer interfaces may alleviate these problems.



### Why are we optimistic about results?

Grey parrots live in 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 face-to-face social interaction with online communities and relationships.

### 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.

