Michael Johnson, PhD

The next time Dr. Dolittle wants to talk to the animals, he'll first check with Michael Johnson, Ph.D. Dr. Johnson is a new assistant professor of electrical and computer engineering who, along with collaborators at Disney World, is studying how elephants communicate. Specifically, Dr. Johnson is investigating the infrasound communication below the level of human hearing in elephant social groups. By studying elephants, the largest species in captivity, Johnson and his colleagues are learning how to build an animal speech recognizer that will allow them to ultimately improve methods for breeding in captivity. The speech recognition machine will eventually be able to identify specific animal sounds that correspond to specific behaviors. That's how Dr. Johnson plans to talk to the animals.

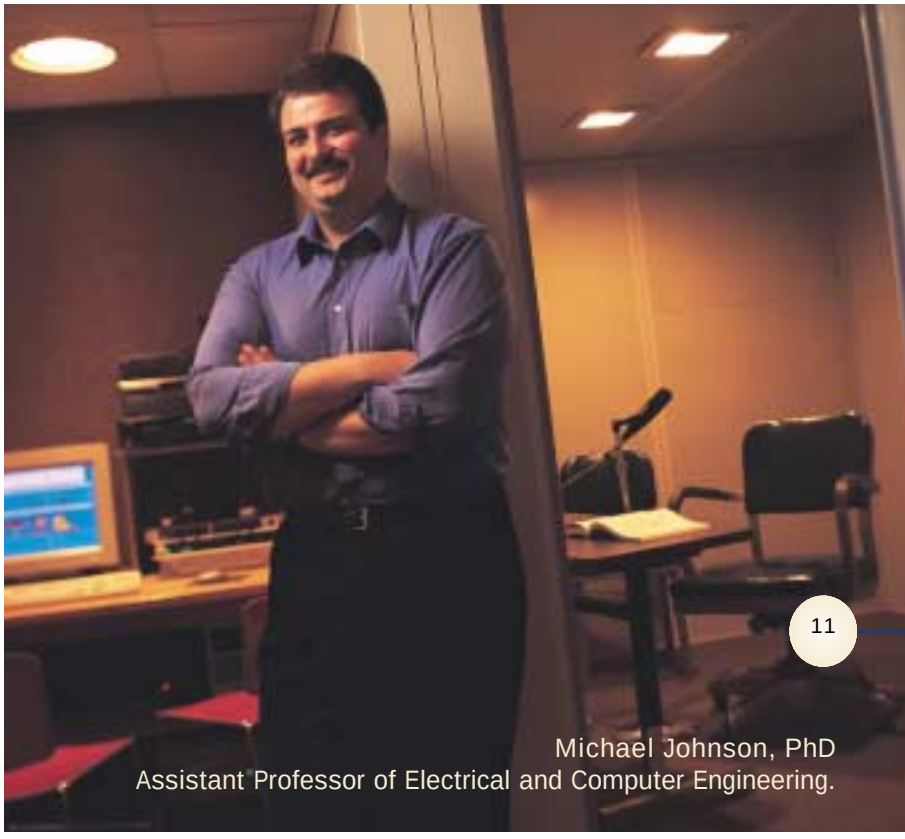
The elephant speech project is just one of Dr. Johnson's interests. In another project, he and fellow engineering faculty member Richard Povinelli, PhD, recently received a grant from the National Science Foundation that allows them to study the dynamical system theories (chaos theory) to speech processing and speech recognition, using chaotical systems and ideas of chaos to model and recognize speech signals.

Much of Dr. Johnson's research and teaching focuses on digital signal processing, which he says is tied into everything we do that involves technology—from computers, printers and televisions to phones and palm-held devices.

Dr. Johnson believes strongly in the value of multidisciplinary research. As evidence, he also continues his work with speech pathologists and audiologists at Purdue University who are studying speech production motor systems and articulation in people with speech pathologies and stuttering.

He approaches his classroom the same way he approaches life: "There are three basic aspects that determine success—motivation, possession of necessary resources and the knowledge/ability to achieve," he said. His teaching philosophy is very student-centered. "I want to motivate my students and foster a desire to learn." He provides the knowledge and that enables them to use and apply the information to new and interesting problems. "I want the students to pick it up and run." This fire translates to his lab as well. The main focus of his research boils down to discovering new methods and algorithms for speech and signal processing, especially as they related to natural speech interfaces for computers and other voice activated products, especially for people with disabilities.

His research and teaching concentrate on a common goal of making life easier and more accessible to those with disabilities. "We are on the verge of so many things," he said, "and I know that if I can imagine it, together we can some day make it happen." •



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