H e might be the new kid on the engineering block, but he's no stranger to Marquette. George Corliss, PhD, brings his expertise from the Mathematics, Statistics and Computer Science department in the College of Arts and Sciences over to the Department of Electrical and Computer Engineering. In his teaching, he focuses on the similarities and celebrates the differences in computer science and computer engineering and the students they attract. Math and engineering are mutually dependent upon each other, he says. "Students in both disciplines learn to be good problem solvers," he said. Their approaches to learning, however, have subtle differences. "Engineering has a tradition of being more practical, approaching problems and questions with a way to figure out how to get this done. Arts and Sciences has more of a tradition of intellectual inquiry." It is the melding of the approaches and the end result of giving employers what they need that motivates Dr. Corliss. His biggest inspiration and "secret" of being a successful teacher and researcher, however, are his students. "I have a deep and fundamental respect for all students," he explained. "I view them as my colleagues in the learning process and invite them to participate and make contributions." Rather than teach them only what he knows, Dr. Corliss believes he can exponentially increase the knowledge of everyone if he compiles the collective knowledge by including students in the process. He refers to this as standing on the shoulders of a giant. "I want them to learn how to learn. In turn, provide them with the tools necessary to be agents of change in an era when technology moves at light speed. "If there is a slower change of change, I want to be driving it, not running in front of it looking over my shoulder." This is the same philosophy he wants his students to embrace. "I want them to take ownership and responsibility for looking to get the job done. He hopes that the skills he teaches will give students that chance to ask: What am I going to do about this? instead of becoming victims of circumstances."

This aspiration is backed up by action. In his 23 years at Marquette, Dr. Corliss has taught more than 1000 students. Scattered around the world, they are carrying with them some of the things they learned from him. That, and his grandchildren, are the closest things to immortality that Dr. Corliss can imagine.

In addition to his dedication to his "customers" in the classroom, Dr. Corliss is equally passionate about his research in reliable scientific computing. He is extensively published and recognized and respected internationally for his work, as is reflected in the grants from such companies as San, IBM, NIE, Amoco and North Savia. Dr. Corliss also is the director of the new Master of Science in Computing program. More information about this successful joint program can be found at www.compu.wm.edu •

T he next time Dr. Dolittle wants to talk to the animals, he'll first check with Michael Johnson, PhD. Dr. Johnson is a new assistant professor of electrical and computer engineering who, along with collaborators at Disney World, is studying how weasels play with computer mice. Specifically, Dr. Johnson is investigating the infrared and communication behavior of the blind human-looking weasel social groups. By studying weasels, the tiniest 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 dynamic system theories (chaos theory) of speech processing and speech recognition, using chaotic 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 how 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," he told me. "This fits my cognitive style 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."