Computer guru receives award

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Staff Writer

Since he was a kid, Seong Kong has always been interested in the inner-workings of computers. Now his passion has earned him a prestigious award in the field of computer image processing.

Along with his co-authors, Kong, associate professor of electrical and computer engineering at the university, will receive the Most Cited Paper Award at an upcoming international conference on computer vision for a paper titled "Recent Advances in Visual and Infrared Face Recognition — A Review."

The paper received the highest number of citations between 2004 and 2006 for any article published in the journal, Computer Vision and Image Understanding. The citations were counted from more than 200 journals, representing a wide range of scientific fields.

Still, the scientific community carries more importance for Kong than his own recognition.

"This paper gave a big impact in the scientific community," he said.

His paper details the latest breakthroughs in technology concerning the use of visible light and infrared radiation to map facial structure. Its highlight is the contrasting between the two different, but equally useful techniques.

Measuring visible light relies on what light reflects off the body and works best with good illumination. On the other hand, infrared tools measure the heat radiated from a body and are especially important for security purposes.

"Heat energy comes from blood vessels," Kong said. "Current face recognition technology can be fooled by changing face appearance, like a fake beard. But it's hard to alter the flow of blood vessels."

Research in the paper shows that equipment designed to utilize both techniques performs better than equipment designed to employ just visual imaging or infrared imaging.

"The paper talks about two different modalities — visual imaging and thermal imaging — and the use of a combination between them," Besma Roul Abidi, a co-author of the paper, said. "We found by combining the visual and the thermal, you can achieve better results."

The equipment designed to accomplish these functions has always intrigued Kong. He credits his older brother, who pursued an engineering career, for sparking his initial interest.

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Dr. Seong Kong uses his computer to complete tasks during a work day.

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Born and raised in South Korea, Kong earned his bachelor and master's degrees in electrical engineering from Seoul National University. With aid from a government scholarship, he joined the ranks of graduate students at the University of Southern California in Los Angeles.

"The government scholarship was important. Otherwise, it would not have been possible to go to America," Kong said. "I believed America (would) give me more opportunities to succeed in engineering."

Upon receiving his doctorate in electrical engineering, he taught in Aachen, Germany and his native country, South Korea. In 2000, he returned to the United States as a visiting scholar at Purdue University.

It was during Kong's studies that he came across the works of Rafael Gonzalez. Gonzalez remains a distinguished professor in the fields of computer image processing and spent much of his career as a professor at the University of Tennessee. Kong credits Gonzalez as a primary reason he came to UT.

"I knew that Gonzalez and I knew that UT are strong (in engineering), especially in image processing research," Kong said.

Kong now occupies Gonzalez's old office, serving as associate professor like Gonzalez did in 1973.

Currently, he is working with hyperspectral imaging to detect cancer cells. His upcoming Most Cited Paper Award does not seem to distract him from his work. His main motivation is not fame, but discovering new ways to improve technology and computer techniques.

If nothing else, the recognition of his research paper is a clear validation of his success.