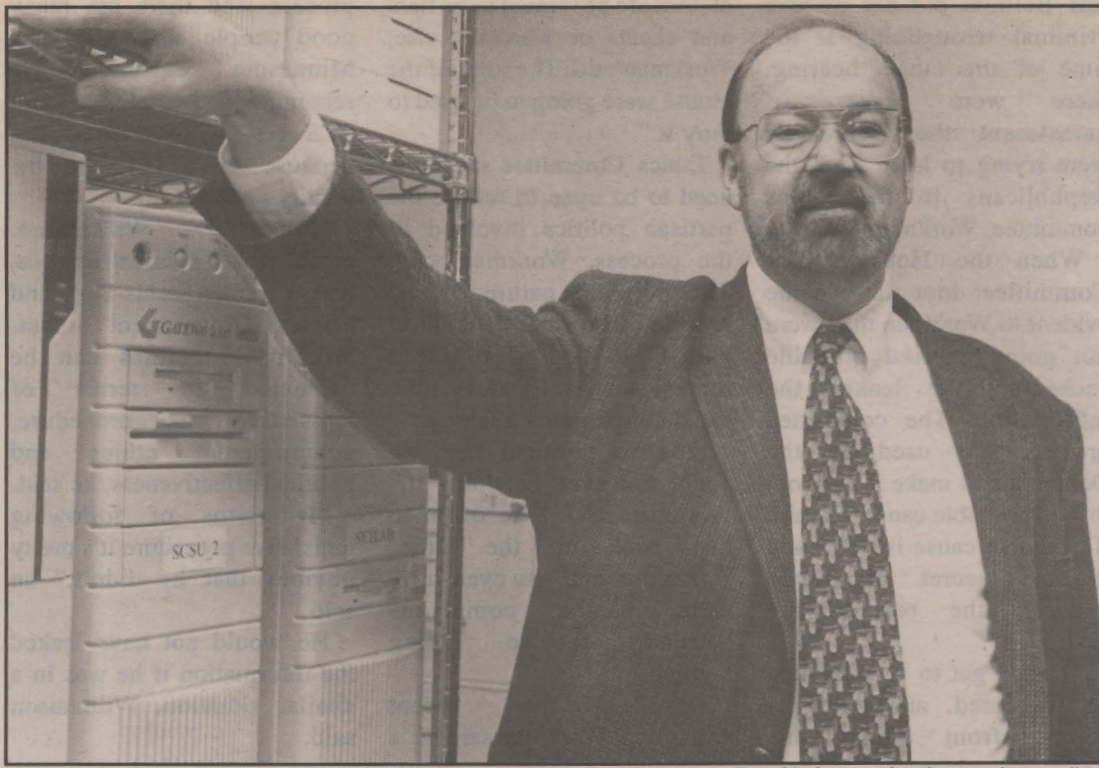


# SCS professor earns research grant



Pat Christman/assistant photo editor

**Robert W. Johnson, professor of computer science, has recently received a grant for his discovery of a useful basic computer algorithm.**

**by Lloyd Dalton**  
Staff writer

Professor of computer science Robert W. Johnson earned a \$687,282 research contract for SCS for his discovery of a useful basic computer algorithm.

According to Johnson, the discovery of the algorithm last January was the culmination of nearly four years of research, conducted by himself and two other colleagues, Prof. Louis Auslander at the City University of New York, and Prof. Jeremy R. Johnson at Drexel University in Philadelphia.

"We had been working for the past three years on a \$407,000 grant through the National Institute of Standards and Technology," said Johnson. "What fell out of that basic research is, I think, a practical application."

The contract is through the

Advanced Research Projects Agency.

The algorithm is a variation of a process known as the Fast Fourier Transform, already used in many scientific applications, including the study of viruses and proteins, oil reservoir modeling and medical imaging. The new algorithm speeds up the slow process of transforming data into usable form.

Johnson's work for the contract will consist of studying the possible applications for the algorithm. According to him, one of the most promising areas is medical imaging.

"When doctors use MRI scans to examine a patient, they can only look at still pictures," Johnson said. "The new process may cut down on the delay in processing pictures, so doctors could view a patient's heart beating in realtime."

The money from the grant will be used for the acquisition

of new equipment and purchase of time on a supercomputer for testing of the algorithm.

"We aren't using the contract money to buy anything," Johnson said. "All the equipment is leased. We're looking right now at getting a top-line graphics terminal and some time on a Cray T3-E or an Intel Paragon. Of course, by the time we're ready to go through with the testing, that will probably have changed."

According to Johnson, the contract is for three years, but results should be apparent before that.

"We expect to be able to show the ARPA some hard facts within the next year and a half," Johnson said.

Professor Johnson has been at SCS since 1974. He has published more than 40 research articles and is a member of ACA, ACM, AMS, IEEE and SIAM.