

UC SANTA BARBARA

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## **UCSB COMPUTER SCIENTIST WINS NSF CAREER AWARD**

Anurag Acharya, assistant professor of computer science at the University of California, Santa Barbara, has received a 1999 National Science Foundation Career Award.

The award will fund Acharya's new research project for four years at a total of \$200,000. His research proposes to transform hard drives from primarily a storage device to one that can process, manage and manipulate the information they store.

Known as Active Disks, this new approach seeks to cut down on the time it takes a computer to retrieve and process large datasets. This is particularly useful for large data warehousing installations, like those operated by department store chains such as Sears and Walmart.

"Several application trends indicate that it might be profitable to move data-intensive computation closer to the data that it processes," Acharya said. "The rate at which new data is being placed on-line is outstripping the growth in disk capacity as well as the improvement in performance of commodity processors.

"Furthermore, there is a change in user expectations regarding large datasets, from primarily archival storage to frequent reprocessing in their entirety. These trends have two implications: First, large data warehouses will always have a large number of disks and, second, architectures that do not scale the processing power as the

dataset grows may not be able to keep up with the processing requirements."

Acharya suggests that hard drives should be equipped with substantial memory and a moderately powerful processor. Small programs, known as disklets, can then be downloaded onto the hard drive from a host computer, allowing a set of hard drives to work in parallel on their individual chunks of data.

"To utilize Active Disks, an application is partitioned between a host-resident component and a disk-resident component," Acharya explained. "The key idea is to off load the bulk of the processing to the disk-resident processors and to use the host processor primarily for coordination, scheduling and combination of results from individual disks."

Acharya holds a Ph.D. in computer science from Carnegie Mellon University. He joined the UC Santa Barbara faculty in July 1997.

The National Science Foundation is an independent U.S. government agency responsible for promoting science and engineering through programs that invest over \$3.3 billion per year in almost 20,000 research and education projects in science and engineering.

Editors: A photo of Anurag Acharya is available on request.

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The University of California, Santa Barbara is a leading research institution that also provides a comprehensive liberal arts learning experience. Our academic community of faculty, students, and staff is characterized by a culture of interdisciplinary collaboration that is responsive to the needs of our multicultural and global society. All of this takes place within a living and learning environment like no other, as we draw inspiration from the beauty and resources of our extraordinary location at the edge of the Pacific Ocean.