Bader, Tran receive NSF CAREER Awards

By Michael Padilla

UNM Engineering professors David A. Bader and Hy D. Tran recently received the National Science Foundation Faculty Early Career Development (CAREER) Awards.

Bader, assistant professor in Electrical and Computer Engineering, has been awarded the grant in High-Performance Algorithms for Scientific Applications. His CAREER research plan will investigate and develop algorithms for high-performance computers that have multiple processors, advanced memory subsystems and state-of-the-art communication networks. He harnesses all of these resources concurrently to solve computational science applications. Science-driven problems in genomics, bioinformatics and computational ecology will provide the focus for this research.

“Many scientific applications require the solution to computationally hard problems,” Bader said. “For instance, a simulation model may require datasets in the order of terabytes that overwhelm the capacity of...”

See NSF on PAGE 2

Yturalde brings UNM world of compensation experience

Assumed HR position Feb. 19

By Laurie Mellas-Ramirez
storage on personal computers and workstations. Other problems are
difficult in that they require time-consuming operations whereby a
PC may take months, years or even centuries, to solve a problem
(e.g., weather prediction) whereas the solution must be obtained in a
reasonable amount of time for it to be useful.”

He said a personal computer typically contains a single
processor (e.g., an Intel Pentium) and applications written for this
machine in general give the processor a single stream of instructions
to execute one-by-one.

“Imagine now using hundreds, or thousands, of processors
together to solve a computational problem,” he said. “We still must
give each processor a stream of instructions, but now, we must find
clever ways to partition the work among a number of processors.”

Tran, assistant professor in Mechanical Engineering, received
his CAREER grant in micro-electro-mechanical systems (MEMS)
specifically, investigating alternative means (as opposed to batteries)
for providing power to microsensors and other microsystems.

“I am especially interested in scavenging energy from the
environment to power microsystems,” Tran said. “If you look at the
environment, ambient light can provide energy, as can ambient
vibrations and acoustic sound. I will be investigating the use of
ambient temperature fluctuations to generate power for
microsystems.”

His research has environmental benefits, including reduced use
of batteries with possibly hazardous materials, such as nickel/
cadmium.

Tran said the NSF CAREER grant will also support integration
of research into education, and educational outreach to K-12
students. The educational benefits should include greater awareness
of engineering and technology in K-12, and eventually, more
students choosing science/engineering majors.

The CAREER program is a NSF-wide activity that supports
junior faculty within the context of their overall career development.
It combines in a single program the support of research and
education of the highest quality and in the broadest sense.

This premier program emphasizes the importance the Foundation
places on the early development of academic careers dedicated to
stimulating the discovery process in which the excitement of
research is enhanced by inspired teaching and enthusiastic learning.
The UNM Ph.D. program in Intercultural Communication is ranked first in the country in a peer survey conducted by the National Communication Association. Intercultural Communication is the study of the relationship between communication and culture.

UNM School of Engineering professors David A. Bader and Hy D. Tran have received the National Science Foundation Faculty Early Career Development (CAREER) Awards. The CAREER Awards emphasizes the importance of early development of academic careers dedicated to stimulating the discovery process in which research is enhanced by teaching and learning. More.

Welcome to the University of New Mexico. Based in Albuquerque, UNM is the state’s largest university, with more than 30,000 students on five campuses. UNM offers nationally ranked academics, exceptional research, recognized athletics and an architecturally unique campus.