

## IEEE Elects Two New Fellows From Jacobs School Faculty At UC San Diego

December 14, 2004

Doug Ramsey

Two faculty members from the University of California, San Diego's Jacobs School of Engineering have been elected Fellows of the Institute of Electrical and Electronics Engineers (IEEE). Jeanne Ferrante and Truong Nguyen are among 268 senior researchers from the private and public sectors named to the organization's highest membership level, effective January 1, 2005. Their election brings to 24 the number of IEEE Fellows on the school's faculty.

"Professors Ferrante and Nguyen are stellar examples of dedicated researchers working at the intersection of their respective disciplines-computer science and electrical engineering," said Frieder Seible, dean of the Jacobs School. "Their research successes are all the more impressive because both of them maintain heavy teaching schedules, and in Professor Ferrante's case, substantial administrative duties as well."

Jeanne Ferrante is Associate Dean of the Jacobs School and a professor in its Computer Science and Engineering department. She was honored by the IEEE "for contributions to optimizing and parallelizing compilers." Compiler technology makes scientific applications run faster by providing the necessary interface between programming languages and architectures. Ferrante's particular research interest is in exploiting parallelism and optimizing data movement to achieve high performance.

The computer scientist joined the UCSD faculty in 1994 after sixteen years on the research staff at IBM's T.J. Watson Research Center. She received her Ph.D. in mathematics from MIT in 1974. Ferrante is one of three professors in the High Performance Compilers group, and is a past vice chair of the Computer Science and Engineering department. She is one of only a few UCSD academics to hold fellowships simultaneously in IEEE and the Association for Computing Machinery (ACM), to which she was elected in 1996.

Truong Nguyen is a professor in the Jacobs School's Electrical and Computer Engineering department, where his research focuses on image and video compression and signal processing. IEEE cited him for "contributions to the theory and applications of filterbanks and wavelets"-the topic of a popular textbook he co-authored with Gilbert Strang in 1997 (Wellesley-Cambridge Press). Wavelets refer to the tiny waves of video information into which video streams may be decomposed for further manipulation and processing. As manager of UCSD's Video Processing Group, Nguyen's research involves invention, development, analysis and implementation of multi-rate systems, with emphasis on low-power application in image and video processing and implementations on digital signal processor (DSP) architectures. Truong has developed novel techniques to provide for smoother motion animations on wireless systems that normally lack sufficient bandwidth to sustain frame rates high enough to avoid a jerky picture.

After receiving his Ph.D. from Caltech in 1989, Nguyen worked with the MIT Lincoln Laboratory from 1989 to 1994, and did a sabbatical as a visiting lecturer at MIT and adjunct professor at Northeastern University. Later he taught at the University of Wisconsin, Madison and Boston University, prior to joining the UCSD faculty in 2001. Nguyen is the author of several matlab-based toolboxes on image compression, electrocardiogram compression and filter bank design. He also holds numerous patents, including one for an efficient design method for wavelets

and filter banks. Truong shared a best-paper award in 1992 from IEEE Transactions in Signal Processing (with P.P. Vaidyanathan), and received an NSF Career Award in 1995.

Nguyen and Ferrante are both affiliated with the California Institute for Telecommunications and Information Technology [Cal-(IT)<sup>2</sup>]. In addition, Nguyen is a member of UCSD's Center for Wireless Communications, while Ferrante is a Senior Fellow in the San Diego Supercomputer Center (SDSC).

The IEEE Board of Directors selects Fellows based on an extraordinary record of research accomplishments in any of the IEEE fields of interest. Since 1963, IEEE has acknowledged those individuals who have contributed to the advancement of engineering science and technology (although the fellowships date back to 1912 and a predecessor organization of IEEE).

Recent IEEE Fellow inductees from the Jacobs School include CSE's Rajesh Gupta in 2004, and ECE's Rene Cruz and Shaya Fainman in 2003, former ECE chair Charles Tu in 2002, and Ferrante's CSE colleague (and husband) Larry Carter, who has been an IEEE Fellow since 2000.

Media Contact: Doug Ramsey, (858) 822-5825

