MSU honors outstanding faculty

Feb. 12, 2015

Lalita Udpa and Nelson Sepulveda presented top awards at MSU Convocation

Two from the MSU College of Engineering were honored for their outstanding contributions to education and research at the 2015 MSU Awards Convocation Feb. 10.

Lalita Udpa received the 2015 William J. Beal Outstanding Faculty Award and Nelson Sepúlveda was presented the 2015 Teacher-Scholar Award.

The William J. Beal Outstanding Faculty Award honors a comprehensive and sustained record of scholarly excellence in research and/or creative activities, instruction and outreach. Ten faculty members were honored this year.

The Teacher-Scholar Award is given to faculty members who early in their careers have earned the respect of students and colleagues for their devotion to and skill in teaching, and whose instruction is linked to and informed by their research and creative activities. Four faculty members were honored this year.

2015 William J. Beal Outstanding Faculty Award
Lalita Udpa
Department of Electrical and Computer Engineering

Lalita Udpa is an international expert in the field of nondestructive evaluation and testing and is recognized as a leading authority on the development of inverse problems for low frequency electromagnetic sensing methodologies, having been actively involved in research in the development and use of computational methods for electromagnetic NDE. She has successfully blended complex theoretical concepts with practical approaches to provide innovative solutions to the complex problem of nondestructive modeling, evaluation, and testing of materials. Researchers regularly cite her publications and many of her writings are considered standard reference material in electromagnetic NDE.

Udpa’s publication record includes 137-refereed articles, 239 refereed papers and 14 books or book chapters. She has been the PI/Co-PI on grants and contracts from the Electric Power Research Institute, NSF, NASA, the Federal Aviation Administration, the Air Force, Boeing and others, totaling more than $8.4 million. For her work with the FAA, she received the FAA “Better Way Award.”
Udpa has made important contributions to the education of students in the areas of electromagnetic NDE, electromagnetics, pattern recognition, wavelets, neural networks, and digital image processing. She has taught courses ranging from introductory electrical engineering analysis and signal processing to wavelets and neural networks. She has developed a graduate course in digital image processing and contributed to revising the electrical engineering analysis course to emphasize probability and statistics. She has successfully mentored 24 Ph.D. students, 12 of whom are active in universities, and served as the advisor for 40 M.S. students.

Udpa’s has actively served her profession and the university. She has been on the international program committee of the Institute of Electrical and Electronics Engineers-International Society for Optics and Photonics Technology since 2002 and organized and co-chaired the ENDE 2004, the EII EIT 2006 and the ISEM 2007, all of which were held in East Lansing. Additionally, Udpa has served on a number of committees at MSU at the department, college, and university levels, including the ECE Graduate Admissions and the ECE Advisory Committees.

**2015 Teacher-Scholar Award**  
**Nelson Sepúlveda**  
Departments of Electrical and Computer Engineering, and Mechanical Engineering

Sepúlveda is internationally recognized for his research on vanadium dioxide based microelectromechanical systems and smart materials, and is known as a highly enthusiastic teacher with an outstanding record of scholarship and collaboration. His research program is funded by the National Science Foundation and the Air Force Research Laboratory. His extensive committee work and community outreach includes Spartan Engineering for Teens and the recruitment of underrepresented students to the study of engineering.

His students call him “an innovative educator,” whose “courses are highly regarded.” Two of his students have won the Outstanding Graduate Student Award from the Department of Electrical and Computer Engineering.

Sepúlveda’s research has had an impact on the integration of novel smart materials in microelectromechanical systems. In particular, he is one of the leading researchers on the use of vanadium dioxide thin film in MEMS and has made a number of fundamental contributions to this field. VO₂ is a novel smart material capable of solid-to-solid phase transition close to room temperature that holds tremendous potential in actuation, optical and memory technologies. Sepulveda was the first to report the effects of the structural phase change in VO₂ on microstructures. This finding has initiated a transformation of the field of thermal micro.transducers by enabling a more efficient technology for micro-actuation with sensitivities beyond the theoretical limits imposed on existing technologies. Currently, Sepúlveda is building on this foundation to develop various novel devices including fully integrated VO₂-based MEMS actuators, infrared camera/projectors, voltage-controlled resistors, MEMS memories and thermal energy harvesters.

*Story courtesy of MSUToday*

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