



momentum

COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY | UNIVERSITY OF SOUTH CAROLINA | JANUARY 2007



DEAN'S CORNER

It's not your father's engineering education



We already take them for granted, but the engineering, technological, and scientific marvels that humankind has seen in the past two or three decades are nothing short of astounding.

Today they touch every facet of our lives, and they hold great promise for the future. But from our standpoint in the College of Engineering and Information Technology, these remarkable changes affect not only products and processes—they influence the very nature of engineering and computing education itself.

Today we expect more from our graduates than we did even a generation ago. Engineering education in the past was rigorous and produced generations of fine engineers who were taught how to calculate, design, and solve problems within their specific disciplines. That was enough, but no longer: Things have changed. We're now looking upon the new face of engineering and computing, and an exciting, compelling visage it is.

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ENDOWED CHAIR

Reifsnider joins college faculty



Kenneth Reifsnider takes great pride in announcing **Dr. Kenneth Reifsnider**, a well-known and highly respected expert in solid-oxide fuel-cell technology, is joining its mechanical engineering faculty as the Educational Foundation University Professor and director of the Solid Oxide Fuel Cell program.

Currently the Pratt and Whitney Chair Professor in Design and Reliability at the University of Connecticut and the director of the Connecticut Global Fuel Cell Center, Reifsnider is a member of the National Academy of Engineering. "This membership is the top distinction in our field," said **Dean Amiridis**. "We didn't have a single active member of the National Academy of Engineering at this University, or even in the state," he continued, "so his acceptance of our offer represents quite a coup for us." His addition to the faculty reflects the college's goal of attracting eminent researchers and educators.

ALUMNI SPOTLIGHT

Deepal Eliatamby, P.E., SCCED



Deepal Eliatamby comes from a family of lawyers, but construction is the field that caught his interest—and kept it. Today he is the president of Alliance Consulting Engineers Inc., a successful civil-engineering firm in Columbia.

Arriving in the United States in 1984 from his native Sri Lanka, Eliatamby preferred to attend college in the temperate climate of the Southeast, so he checked out various schools in the region. He finally settled on USC. "It was the best decision I've made in a while," he said. "I don't think I could have gotten a better education anywhere else." In 1988 he received his BS degree and, a year later, his MS degree, both at USC and both in civil engineering.

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Tommy Gregory (right) congratulates Prof. Roger Dougal.

GREGORY PROFESSORSHIP

Professor Dougal recognized for exemplary teaching

“USC and the G.I. Bill made it possible for me to achieve my passion to earn an engineering degree, and the suggestion that I endow a professorship was an opportunity to assist the University in continuing and expanding the work of those who helped and inspired me,” **Thomas L. Gregory**, BSEE ’49, remarked recently. “I was lucky to have had really great teachers when I was at Carolina, and the chance to help guarantee that same benefit to our current and future students just made good sense,” he added.

This January, the college used the earnings from the endowed professorship created through a gift from Gregory and the company he owned at that time, Gregory Electric Company, to recognize **Professor Roger Dougal** for exemplary teaching in the Department of Electrical Engineering. Dougal has been on the faculty at USC since 1983 and is a past recipient of the Samuel Litman Distinguished Professor of Engineering Award.

“I consider this a great honor and will do my best to continue to put the interests of my students first,” Dougal said. “I want them to have the same fond memories of Carolina in years to come that Tommy Gregory has today.”

STUDENT PROFILES



Fahmin Basher

A junior in USC’s chemical engineering program, **Fahmin Basher** is no stranger to engineering. “I come from a family of engineers,” she said, “and that was a big influence.” She loved chemistry and math in high school, but didn’t want to pursue a degree in pure science. Chemical engineering, however, caught her interest.

More specifically, Basher has an interest in biomedical engineering, but that course of study wasn’t in place yet when she started at USC a few years ago. Instead, she is also pursuing a degree in biology.

She is a recipient of the Henry M. Rothberg Bicentennial Scholarship, which is awarded to chemical engineering students at USC who have strong academic records and who have been active in high-school and community leadership. That description fits her well. An excellent student in high school, she was also a member of the National Honor Society and a Red Cross volunteer, involved in many service projects through both organizations.

And what will she do upon graduation? Basher has her sights set on an M.D.-Ph.D. program. The double-degree, seven- or eight-year program trains students to become medical scientists who work in both research and clinical environments.

“When I started college,” Basher said, “I had planned to go to medical school after graduation. But, once I got into college and started doing research, I knew I wanted to do more than practice medicine.”

She is well on her way to success in her future career. “I’m really honored to be a Rothberg Scholarship recipient,” she said. “I think [the scholarship] encourages me to achieve more in college, to always try doing a little bit more than everybody else.”



Rishi Mukhopadhyay

At Cornell University, where he received his BS degree, **Rishi Mukhopadhyay** studied computer science. Today he’s pursuing a graduate degree in that same major at USC’s College of Engineering and Information Technology.

When his plans for summer classes at Cornell fell through a few years ago, he got in contact with his father’s former student advisor at USC, **Dr. Michael Huhns**, professor and NCR chair in computer science and engineering. He asked if Huhns could use a summer research assistant and offered to work without pay. Huhns accepted the offer and invited Mukhopadhyay down to USC.

Mukhopadhyay soon began working with **Dr. John Rose**, associate professor in the Department of Computer Science and Engineering, on a bioinformatics project. That project, funded by the USDA, involved studying the way viruses affect mammals, particularly livestock. “As a result,” said Mukhopadhyay, “I became very interested in bioinformatics, a field I had not considered before.” When it came time to look at graduate schools, he applied to USC, given his interest in the work he had been doing and the fact that Dr. Rose was an excellent advisor. “Dr. Rose was able to get me a Rothberg Scholarship,” he said, “which meant I was able to do research from day one in grad school.”

Upon graduation, Mukhopadhyay will pursue a tenure-track position at a university, doing computational research and teaching classes. In the meantime, is he satisfied with his experience at USC? “Absolutely,” he said. “USC is everything I was looking for. Everyone in our department has been extremely helpful, and I find the environment here to be extremely conducive to my research and to having a good time.”

DEPARTMENT CHAIRS



Professor Michael Matthews is the chair of USC's Department of Chemical Engineering, where he conducts research on supercritical fluid science and technology, electrochemistry

Michael Matthews

in ionic liquids, and hydrogen storage in chemical hydrides. He is also heavily involved in starting up the college's biomedical engineering degree programs. Matthews has helped start two technology companies based on research from his lab, and he received the 2002–2003 Golden Key Award for Creative Integration of Research and Undergraduate Education at USC.

A native of Texas, Matthews earned his BS and Ph.D. degrees in 1979 and 1986, respectively, from Texas A&M University. After six years on the faculty of the University of Wyoming, he came to USC, where he has been for 13 years. His goals are to improve the Department of Chemical Engineering's national rankings and reputation, to increase its undergraduate and graduate enrollments, and to develop a department full of outstanding students, faculty, and staff who have chosen USC over its worthy competitors. "We can reach these goals by developing truly exciting and compelling educational programs, focusing on professional development opportunities, and continuing to hire faculty who are both great teachers and researchers," he said.



Professor T.S. Sudarshan is the newly appointed chair of the Department of Electrical Engineering, beginning his term in September 2006. His accomplishments as a researcher and scholar

T.S. Sudarshan

are well-known, and he is a pioneer in the field of high-voltage electrical insulation. This research was key to the development of pulsed power systems and in compact X-ray and electron-beam sources.

Sudarshan received his Ph.D. from the University of Waterloo, Ontario, in electrical engineering, and he came to USC in 1979 from the National Research Council of Canada in Ottawa. At USC he has a strong research group in his Silicon Carbide Research Lab focusing on novel techniques of growth of silicon carbide bulk and epitaxial films and device-defect correlations. He has received a number of prestigious awards, and he was named 2006 Governor's Distinguished Professor by **Gov. Mark Sanford**.

"My vision for the department," Sudarshan said, "is to meet the challenges of educating our students to the rapidly changing needs of the workforce due to globalization. And, working with alumni and industry partners, I look to continuously improve the quality of our graduating students to reach our goal of becoming a recognized, premier, national electrical engineering department."

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Today's engineering and computer science graduates, of course, must still possess a solid foundation of technical skills and knowledge, but they're expected to go beyond that scope. We expect our students to be able to transcend the traditional boundaries between disciplines and to work in multidisciplinary teams. We expect them to work with scientists and medical doctors and to be able to operate successfully in a multicultural, multinational global environment.

Moreover, today's graduates must have an understanding of the ethical, societal, and environmental implications of their work, particularly in newer fields of study such as nanotechnology where we venture into uncharted territory. Our graduates don't necessarily need to know how to solve such complex issues, but they should at least have a clear understanding of them.

And we who educate them are expected to instill in our students an appreciation for lifelong learning in their chosen professions. If they don't progress beyond what they've learned in college, in ten years they'll be functionally obsolete as engineers and computer scientists in this rapidly changing world.

So before us, then, is the new face of engineering and computing. It offers us an exciting challenge, one we take on with great enthusiasm.

—Michael D. Amiridis
Professor and Dean

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Eliatamby's record of accomplishment and recognition far exceeds the space constraints of this newsletter, but that record is without a doubt a commendable and enviable one. In 2004, to take just one example, the state of South Carolina passed "A concurrent resolution to extend the appreciation of the members of the South Carolina General Assembly to Mr. Deepal S. Eliatamby, P.E., for his continued service to his community and the state through his expertise in civil engineering...."

When asked why he remains so active in service to his community and the state, Eliatamby replied, "I just love working with people. It's one of the things I really cherish about civil engineering—I get to travel and meet folks from the big cities and from the small towns."

And he has not forgotten USC, to which he has generously given his time and financial assistance. In 1999, for example, at the age of 33, he funded a graduate fellowship. He himself was able to get a good education, he said, and now he feels an obligation

to give back to USC, to the college, to the Department of Civil Engineering, and to the state as a whole. "We can talk all we want," he said, "but we need to lead by example."

Eliatamby is pleased with the direction the college and USC are taking under the leadership of **Dean Amiridis** and **President Sorensen**. "It's the most exciting time to be a student or an alumnus of USC," Eliatamby said. "And that goes not just for academics, but for sports and everything else. The excitement that's occurring in Columbia and the state as a result is incredible."

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FACULTY ACHIEVEMENTS

Raising the profile of the college

Chemical Engineering

Professor Jerome Delhommelle was recently named a regional editor of the journal *Molecular Simulation*.

Civil and Environmental Engineering

Associate Professor Jasim Imran has received the College of Engineering and Information Technology Research Progress Award. He was also the recipient of the department's Bert Storey Award for Innovative Research.

Computer Science and Engineering

Dr. Marco Valtorta and **Professor Michael Huhns** were awarded a \$1.925 million grant from the Department of Defense for their research, titled "Combining Facts and Expert Opinion in Analytical Models via Logical and Probabilistic Reasoning."

Electrical Engineering

Professor Roger Dougal was named the 2006 Thomas Gregory Professor of Electrical Engineering, and he received the college's Research Achievement Award for 2005–2006. Dougal has also received the Palmetto Pillars Award as cochair of FIRST Robotics.

Mechanical Engineering

Professor William F. Ranson III received ASME's national Frank von Flue Award for providing outstanding lifelong-learning programs for the University, ASME, and the mechanical engineering community through dedication and leadership as an educator, an administrator, and a researcher.

GOLD

A visit with a graduate of the last decade



Rachel Card

With a BS in mechanical engineering from USC (2000) and an MS in mechanical engineering from MIT (2002), **Rachel Card** carries some impressive credentials. She was also valedictorian of her graduating engineering class at USC.

Card is the daughter of **Dr. Walter H. "Wally" Peters**, a professor of mechanical engineering in USC's College of Engineering and Information Technology, and he certainly had an influence on her decision to pursue an engineering degree.

Nevertheless, Card did not enter the mechanical engineering profession. Today

she is a project manager with Sagacious Partners, a consulting firm in Columbia. She works on economic-development projects, specifically those related to building the knowledge economy. She loves her work. "For me, engineering is a way of thinking, of solving problems," Card said, "and not necessarily a career choice. I think all fields of engineering are great foundations for pretty much any occupation."

Card is also the college's representative to the Council of Alumni Societies, which is part of the Carolina Alumni Association. She is married to **Drew Card**, a fellow mechanical engineering student she met at USC, where he also received his BS degree. He is a software engineer with his own company.

WIN A BOSE® WAVE® MUSIC SYSTEM VALUED AT \$499!

We work hard to stay in touch with our alumni and friends. Toward that end, we have partnered with our friends at the Bose Corporation to set up a special drawing that offers a chance to win a fabulous Bose Wave music system. Seen in the best homes and offices, the Bose Wave sets a bold new standard in audio performance from a tabletop system that's as elegant as it is easy to use.

To enter this March 15, 2007, drawing, contact us by e-mail (bosecontest@enr.sc.edu), phone (803-777-4259), or postal mail (Office of the Dean, Swearingen Engineering Center, University of South Carolina, Columbia, SC 29208).

Give your full name, year of graduation, major, home and business addresses and phone numbers, and e-mail address. This information is for the use of the college only and will not be sold, rented, or given to outside parties. The deadline is March 8, 2007, so why not enter now before you forget? Good luck!