George Sakellaris - Distinguished Engineer

George Sekellaris (BSEE'69) was inducted into the Francis Crowe Society as the ECE Distinguished Engineer for his major contribution to practice of engineering in May 2006.

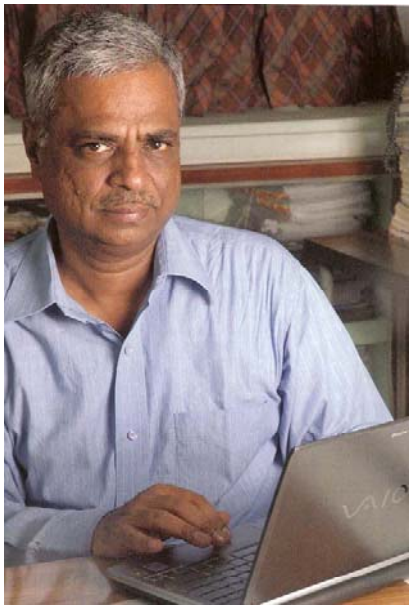
George came to the United States to attend the University of Maine as a young immigrant from Greece. His cousins, the Brountas family ran a restaurant in Bangor with whom he lived and worked his way through college

Upon graduation, he began a career with New England Power Services Company, where he was responsible for strategic planning and recommending conservation strategies. While working, he pursued a master's degree from Northeastern University graduating in 1975. In 1987, he founded NORESCO, which designed, built and serviced energy efficient programs for a wide spectrum of businesses and organizations. George joined Equitable Resources, an integrated energy company, when it acquired NORESCO in 1997 and served as president and senior vice president of the corporation.

Mr. Sakellaris had a vision of creating an energy company that had the skills, capabilities and foresight to create energy solutions that went beyond just conservation and addressed a customer's entire energy stream. As a result he founded AMERESCO in April 2000, built on the principals of integrity, innovation and flexibility.

Mr. Sakellaris' experience and influence have helped to shape the energy industry over the past 20 years, making him a respected leader in the energy services industry. In Sept. 2005, Mr. Sakellaris was invited by former President Bill Clinton to speak at the Clinton Global Initiative Conference in New York City, participating in a session on "Unlocking Innovation: Global Business and New Technologies.

Innovation with Compassion



Former Electrical Engineer Ashok Jhunjhunwala (MSEE '77, PhD '79) may be little-known in Maine, but he is considered a national treasure in his native India. One of the University of Maine's most distinguished grads, Ashok integrates an exceptional level of innovative scientific creativity and accomplishment with a profound sense of moral conscience and commitment to serving the well-being of others. Not concerned with personal wealth, power, and privilege, he is motivated to use science and technology to serve the needs of the most disadvantaged, suffering human beings.

In an emerging powerful nation of over one billion Indians and full of remarkable scientists and engineers, Ashok Jhunjhunwala's career stands out as a hopeful model for the survival and flourishing of India, the United States, and the rest of humanity.

Ashok Jhunjhunwala had long known that the key to a better life for poor rural Indians was affordable telecommunications. The problem was that traditional telephone systems use expensive copper wires. For India to go from one percent of homes having telephones to 15 or 20 percent would be prohibitively costly. The only solution would be to find a way to eliminate the copper wire. With the creation of corDECT, a wireless loop system, that's just what he and his colleagues did. Wireless is basically replacing the wires or copper in the local loop with a wireless system. The new system costs just a fraction of traditional wire technology and one-third of existing wireless technology. The goal of providing telephone service to India's 700,000 villages was achieved. He and his colleagues are involved in various projects that are going beyond minimal telecommunications to providing such things as internet services, medical technology services, ATM services, and more.

In 2002, Ashok was honored with the Padma Shri Award for distinguished service in science, technology, and telecommunications. In India, the Padma Shri Award is considered one of the highest national honors. In addition, he received the Shanti Swarup Bhatnagar Award in 1998 for outstanding contributions in the field of engineering sciences. One award is given each year, and this is often considered the most prestigious science award in India. Ashok now serves as a member of the Scientific Advisory Committee of the prime minister of India. Only eight scientists from all of India serve on this influential body that meets regularly to help shape India's science, technology, and economic future.

Born and raised in Calcutta, Ashok was an undergraduate student at the prestigious Indian Institute of Technology (IIT), Kanpur. Ashok had an Indian friend who was a graduate student at UMaine and encouraged him to apply. Prof. John Vetelino saw Ashok's resume and wrote him a very warm, personal letter in which he invited him to join the graduate program, Ashok was touched by Prof. Vetelino's kind offer, and for him integrity and personal commitment are values to uphold in one's life. He turned down offers from other universities, and against the advice of others, he accepted the offer to come to Maine. He never regretted his decision.

UMaine was an overwhelmingly positive experience for Ashok Jhunjhunwala. He found Maine to be an incredibly beautiful place, and he fell in love with it. While John Vetelino was his major guide, Professor John Field and other faculty were also of great assistance to him. As a graduate student, he appreciated the fact that he got a lot of individual time interacting with the faculty.

Many lessons emerged from Ashok's experiences in Maine and the United States. It was in Maine that he developed his remarkable self-confidence. When he and other Indian students came to the US, they found that they compared favorably with American students and that they were capable of doing excellent work. This lesson had a profound effect that he and other Indian scientists could do work at the highest levels of scientific achievement. There was no need to feel inferior or be intimidated by the West. Ashok emerged as a leader in the peace and justice

movement working through the Maine Peace Action Committee (MPAC). Through MPAC he was challenged to develop his analysis of issues of violence, war, and imperialism.

Today in India, Ashok Jhunjhunwala is widely recognized as the leader and catalyst for numerous innovative science and technology projects.

A complete story on Dr. Jhunjhunwala can be found in the Spring 2006 edition of the *Maine Alumni* Magazine.

Incoming Students

This year we are off to a great start. There are a total of 40 incoming students from which 20 are in Electrical Engineering and 20 in Computer Engineering. There are also 8 General Engineering students who are planning to join ECE. These students are looking forward to a great educational experience with our dedicated faculty members and great facilities. Our student to faculty ratio is 12:1 and with your generous support we have been able to provide our students with upgraded equipment in all ECE laboratories.

Accreditation of Board of Engineering and Technology (ABET) Visit

The University of Maine B.S. Electrical and Computer Engineering programs are accredited by the Engineering Accreditation Commission (EAC) of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - Phone: (410) 347-7700. ABET evaluators will be on campus during October 15-17 to evaluate the Electrical Engineering and Computer Engineering programs. Their last visit was in October 2000. The evaluation process includes a self-study report for each program, visiting the facilities, meeting with the faculty and students and other constituents such as our recent graduates and employers. If you would like to help us with this process and meet with the evaluators for one hour on Monday, October 16, either from 8:45-11:45 a.m. or 2:30-5:00 p.m., please send me an email at musavi@eece.maine.edu. We would highly appreciate your participation.

ECE Professors Organize Workshop at Jackson Laboratory

ECE Profs. Bruce Segee and Yifeng Zhu organized a four-day workshop in March on parallel computing at the Jackson Laboratory (TJL) located in the tourist's paradise of Bar Harbor. The workshop consisted of lecturing and hands-on parallel programming training. The lectures focused on performance characteristics of high-end supercomputers, programming methodologies and tools, parallel algorithm design, code optimization and debugging techniques. Hands-on labs on parallel programming provided attendees valuable experiences of using the supercomputers with 512 processors to efficiently solve real-life large-scale scientific problems.

Both TJL and the ECE Department have had many active collaborations in scientific computing. The four-day lecture series in Parallel Computing was particularly noteworthy. Indeed, over twenty of TJL researchers who are interested in applying supercomputing techniques in computational biology have attended these lectures. The ECE Department is very keen to continue other such collaborations with TJL.

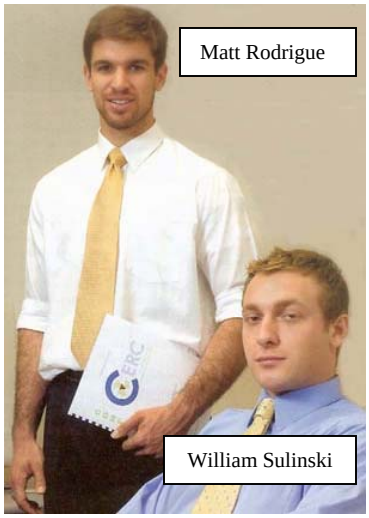
Special thanks to the Advanced Computation Research Lab (ACRL) at the University of Maine for providing supercomputer access.

2006 Student Poster Contest Finalist

Electrical Engineering graduate student, Timothy Beaucage received an IEEE certificate for his paper entitled, "Comparison of High Temperature Crystal Lattice and Bulk Thermal Expansion Measurements of LGT Single Crystal." Tim's paper was selected as a 2006 Student Poster Contest Finalist at the 2006 IEEE International Frequency Control Symposium held June 5-7 in Miami, Florida.

Former Electrical Engineering graduate in the News

Matthew Rodrigue ('04) is providing advising and consulting services to the recently incorporated Consumer Energy Research Corp. (CERC). William Sulinski, president and CEO of CERC and Matt have collaborated to take CERC from the drawing board to the boardroom.



Benchmarks of their success include winning two major business plan competitions: in March, 1 $25,000 prize--$10,000 cash and $15,000 in legal consulting and other services--from the Center for Entrepreneurship at the University of Southern Maine School of Business; and last December, $5,000 in the Canadian Imperial Bank of Commerce Business Plan Competition. In the Spring, the new company also received a $5,000 seed grant from the Maine-based Libra Future Fund. This past summer, CERC was invited by *Fortune* magazine to enter its national business plan competition to vie for the top prize of $35,000.

With investor funding, Sulinski hopes to beta test the company's first product, Heat-Safe, a wireless device to improve the efficiency of home heating oil delivery. They plan to sell their product throughout the Northeast and Midwest.

William Sulinski is a UMaine senior majoring in financial economics and Matt Rodrigue, most recently an engineer team leader at Woodard & Curran Inc., a consulting and operations firm, begins his first semester at Harvard Business School this fall.

Summer 2006 NSF Research Experience for Undergraduates in Sensors

During the Summer of 2006 highly qualified undergraduate students participated in research under the guidance of various faculty in the area of sensor science and engineering in the Electrical and Computer Engineering Department and the Laboratory for Surface Science and Technology (LASST). This program was under the sponsorship of the National Science Foundation. Pictured below are the participants.

Back row, left to right: Brendan Horton (UM), Matthew Wright (UM), Lucas Ellis (California Polytechnic State Univ.) Patrick Noonan (UM), Jonathan Evans (Cedarville College, OH), Shane Winters (UM). Front row, left to right: Melinda Conroy (UM), Regine Ngollo (UM), Michael Anfang (Cedarville College, OH), William Morgan (Rhode Island College), Jennifer Deane (UM), John White (McGill University, Canada), Kevin Goodspeed (UM).

UMaine Nominated For Prestigious "Friend of IEEE Award"

The Regional Activities Board (RAB) of IEEE has nominated UMaine for the prestigious "Friend of IEEE Award" to recognize the campus wide efforts in hosting the 2006 Student Conference and Micro-mouse competition. A special thanks goes to new ECE Professor Ali Abedi, whose outstanding work made this event happen.

The Friend of IEEE Regional Activities Award was created to specifically recognize support provided to the IEEE and its members in support of its goals by firms, divisions of firms or individuals. This award is provided to those companies or organizations that encourage volunteerism through its practices. In particular, the atmosphere created by the company should be to facilitate the IEEE volunteer(s) to do his or her job.

The decision will be announced at a later date.

Summer Junior Engineering and Mathematics Program held at UMaine

The Department hosted the Summer Junior Engineering and Mathematics Program this year. The program was run by Eva Szillery and took place from Monday, June 19 to Friday, June 23. Ms. Szillery is the founder and director of the Maine Mathematics, Science and Engineering Talent Search (MMSETS) Program. Thirty-four students from grades 4-9 participated in the program.

The program was composed of three modules. In the morning, students designed Lego robots to perform a variety of different tasks from sensing obstacles to following a path laid out using black tape. Next, students puzzled over a variety of math, geometry, domino, and chess problems. Later in the afternoon, they also worked on intricate three-dimensional origami structures using colored paper.

Ms. Szillery was assisted by visiting Madawaska high school teachers Lisa Charette and Gisele Faucher. Kevin Townsend, former participant of the MMSETS program, Gabby Raymond from Bucksport High School, and Ali Shareef, graduate student in Electrical and Computer Engineering, also assisted as instructors.

This event was fully supported by the registration fees and the ECE department. If you are interested in sponsoring this event or students in your local community to participate in the program during the summer of 2007, please email musavi@eece.maine.edu or send your contribution to the ECE Department specifying that it is for the Summer Junior Engineering and Mathematics.

Gifts/Donations

William Lambert added $10,000 to his previous donation ($10,000, Dec. 2005) for the "Lambert Family Scholarship."

Y. Zhu received $6,435 in equipment donations from Altera Corporation.

Y. Zhu received $2,000 donation for FPGA software license from Bluespec.

Grants Received

M. da Cunha, "Supplement for NSF-REU students associated with the project SENSORS: Detecting Microbial Pathogens with Novel Surface Acoustic Wave Devices in Liquid Environments," $6,000, 2006 summer project, applied April 2006, funded June 2006.

M. da Cunha, (50%) and R.J. Lad (50%), "Assessment of AFRL GaN and AlGaN Films for Microwave Acoustic Applications in Harsh Environments," Air Force BAA, $48,000. w month project, June 2006.

A. Abedi, "Chapter Achievement Award," Maine Chapter (NA Region) ComSoc Chapter, $950, July 27.

A. Abedi, Seed Grant Proposal, "Application of Error Correction Codes in Wireless Sensor Networks," NASA, $15,000 ($10,000 from start up funds), August 8.

Y. Zhu, "Collaborative Research: SAM^2 Toolkit: Scalable and Adaptive Metadata Management," NSF, $236,867, August 18.

B. Segee (16%), **Y. Zhu** (12%), Chai (12%), Cousins (12%), Bhaganagar (12%), Fastook (12%), Koons (12%) and Xue (12%), "Acquisition of Interactive Visualization Tools for Supercomputer Models," NSF-MRI $705,486 (including $225,486 from UMaine), August 21.

S. Collins (PI) (60%, **D. Kotecki** (20%), **R. Smith** (20%), "Near Term Technology Development for Genome Sequencing Year 3," NIH, $177,520, August 24.

Publications

Peer Reviewed Journals

A. Delic-Ibukic and **D. Hummels**, "Continuous Digital Calibration of Pipeline A/D Converters," IEEE Transactions on Instrumentation and Measurement, Vol. 55, pp. 1175-1185, August 2006.
Peer Reviewed Conference.

E. Berkenpas, P. Millard, and **M. da Cunha**, "Detection of *Escherichia coli* 0157:H7 with Langasite Pure Shear Horizontal Surface Acoustic Wave Sensors," *Biosensors & Bioelectronics*, Vol. 21/12 pp. 2255-2262. July 2006.
Peer Reviewed Conference

A. Delic-Ibukic and **D. Hummels**, "Continuous Gain Calibration of Parallel Delta Sigma A/D Converters," in Proceedings of IEEE International Instrumentation and Measurement Technology Conference, (Sorrento, Italy), pp. 905-909, April 2006.

P. Gu, **Y. Zhu**, H. Jiang, and J. Wang, "Nexus: A Novel Weighted-Graph Based Prefetching Algorithm for Metadata Servers in Petabyte-Scale Storage Systems," in Proceedings of International Symposium on Cluster Computing and the Grid (CCGrid, 2006), pp. 409-416, May, 2006, Singapore.

Y. Zhu and H. Jiang, "On the Analysis and Impact of False Rates of Bloom Filters in Distributed Systems," Proceedings of the 35th International Conference on Parallel Processing, pp. 255-262, Columbus, OH, August, 2006.

Other

Since June the faculty have submitted five proposals for a total of about $2,275,000.

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