The Texas A&M University Fuel Cell Inverter Team from the Department of Electrical Engineering was selected as the grand-prize winner of $50,000 in a national competition to develop an inverter for an environmentally friendly power source called a fuel cell.

The contest was intended to be the first in a series of biannual competitions directed at energy-related issues and technologies where selected universities compete for various prizes.

In August 2001, the Texas A&M team was selected as one of five finalists to compete for the grand prize from among 14 competing universities in the country. The five finalists included Drexel University, The University of Central Florida, The University of Wisconsin—Madison and Virginia Polytechnic Institute and State University.

— Dr. Chanan Singh
EE Professor Works on Human Genome Project

Dr. Ed Dougherty, professor in the Department of Electrical Engineering at Texas A&M University, is currently working on a project in the area of biomedical imaging considered to be of great importance—The Human Genome Project.

Dougherty measures gene activity with engineering techniques such as signal processing, pattern recognition and image analysis. His research is supported by the National Institutes of Health (NIH), the U.S. sponsor of the Human Genome Project.

So far, tens of thousands of genes—pieces of DNA that are the basic units of heredity—already have been identified from the human genome sequence.

“The next step is studying how the genes work in conjunction with each other,” said Dougherty, who directs the Genomic Signal Processing Laboratory in the Department of Electrical Engineering.

With these results, scientists could find out how normal cells become cancerous or how invading viruses change a cell’s genes.

Dougherty examines gene activity using microarray technology, a process developed a few years ago that allows for large numbers of genes to be studied together.

The method involves a robot that precisely applies tiny droplets of DNA from thousands of known genes to a small slide. RNAs obtained from tissue samples and tagged with fluorescent dyes are placed on the slide and bond with appropriate genes. (RNA carries genetic information stored by DNA to other parts of a cell.)

The slides are put into a scanning microscope to form images. These images are digitized, and the brightness of each fluorescent spot is measured by image-processing software.

Dougherty and research assistant Yoganaud Balagurunathan analyze the digitized microarray images gene by gene, measuring the color and intensity of the fluorescence. They use an image processing technique Dougherty developed with researchers at the NIH National Human Genome Research Institute (NHGRI). The information indicates which genes have been expressed, or turned on.

The technique already has played a role in one of the first large-scale studies on cancer genetics made possible by the findings of the Human Genome Project. Dougherty was part of a team of scientists from 11 laboratories in the United States, Australia and Israel in an NHGRI-led study that discovered genetic differences for melanoma cancer subgroups.

Classifying cancer on a molecular level may lead to therapies tailored to individual patients, say researchers with the genome project.

“In a few years, you’re going to see numerous algorithms being developed to classify types of diseases,” Dougherty said.

Research will involve engineers, computer scientists, mathematicians and statisticians, as well as biologists, chemists and physicians working on big teams. Dougherty compares the effort to the early days of the space program.

“This is probably the most exciting scientific project on the face of the earth since the moon shot.”

Contributed by TEES Communications

Technology grant to enhance the quality of electrical and computer engineering graduates

As part of a statewide initiative to increase the number of engineering and computer science graduates in Texas, the Texas A&M Department of Electrical Engineering received the largest single technology award — to enhance the quality and quantity of electrical and computer engineering graduates.

The department also received $31,300 to help launch a Texas engineering education pipeline with 10 other universities, including Baylor University, Rice University, Southern Methodist University and several universities in The University of Texas System.

The award amount of $459,256 could nearly double if the Texas Engineering and Technical Consortium, which awards the grants, is successful in raising the full target amount of funding.

The grants are the first to be made through Texas Technology Workforce Development Grant Program created by the Texas Legislature. More than $4.5 million will go to 23 public and private universities across the state to address the critical shortage of workers in the fields of engineering and computer science.

“The Digital Revolution rests on the shoulders of our young students coming out of Texas schools,” Texas Governor Rick Perry said in announcing the grants. “We must make sure that every young Texan who desires to build the next super-chip or the next life-saving digital device has access to training and expertise available in one of our many great universities.”

The grant program is the first collaboration of its kind between government, higher education and industry. Private contributions include a two-year, $2 million commitment from Texas Instruments, with other contributions from Advanced Micro Devices, Hewlett-Packard, Motorola and Sabre.
The Texas A&M team consisted of undergraduate students, Matt Campbell, Andy Hale, Cory Cress, Jon Burghardt, David Leschber, Cody Sicking, Phillip Briggs, Gary Tobola, Matthew Webster, Nick Deniston, David Payne, Jared Machala, Wes Weibel, Dao Le, Douglas Becker, Justin Busse, Randall Jones, Steven Campbell, Lori Dalton, Mike Spence and Mark Arldt, as well as graduate students Sangsun Kim, Jaehong Hahn, Rajesh Gopinath and Leonardo Palma. Electrical engineering professors Dr. Prasad Enjeti, Dr. Jo Howze and Dr. Mark Yeary advised the team, with Texas Engineering Experiment Station (TEES) research engineer Charles Culp.

During the competition, the teams displayed their prototypes, which were tested with a fuel cell provided by the DOE.

“The [A&M] design presented in the team’s final report passed detailed technical evaluations made by the judges,” said Enjeti. “Furthermore, the Texas A&M fuel cell inverter prototype presented at the test phase of the competition represented the design laid out in the final report, and was proven to operate not only under a dc power supply source, but also under a fuel cell. It achieved successful operation at various load levels with both reactive and non-reactive loads.”

The hardware prototypes judged as best will be tested in a fuel cell system at a national DOE energy technology center. Texas A&M’s converter was considered the most cost-effective design that met the aggressive cost target and was a fully functional prototype.

A distinguished panel of experts from IEEE judged the proposals. The best results in individual categories, including electrical design, packaging, cost analysis and engineering reports, won special prizes of approximately $5,000 each.

During the first competition, the Texas A&M team was among three teams able to get through inspection and initial checkout to gather at least some test time.

The Texas A&M prototype, which used Texas Instruments-donated technology, and the Virginia Tech prototype both ran successfully throughout power-supply testing. Texas A&M’s prototype was successful in drawing power from the fuel cell stack.

“The Texas A&M fuel cell inverter unit was clearly the best performing system which met the delivery schedule and the strict $50/kW cost requirement,” Enjeti said.

The competition addresses the emerging field of distributed electricity generation systems. In the future, many local energy sources, such as photovoltaic units, fuel cells, small turbines, small hydroelectric plants and other dispersed sources, will become a larger fraction of our electrical supply. The 2001 Energy Challenge sought to dramatically improve the design and reduce the cost of dc-ac inverters and interface systems for use in distributed generation systems. For more information about the prototype, visit http://enjeti.tamu.edu/Fuelcell.html.

A new Texas A&M team, led by Enjeti and Howze, is preparing for the 2003 Future Energy Challenge. The theme of the 2003 Future Energy Challenge is “Energy Challenge in the Home.” The objective is to introduce engineering design innovations that can demonstrate dramatic reductions in residential electricity consumption from utility sources or that can lead to the best use of electricity in newly connected homes in developing nations. The innovations should be low-cost, with broad potential for the future. Student teams will choose their general area of technology contribution from a wide variety of topics.

Total prize money of at least $100,000 will be awarded for work that meets aggressive targets for engineering design innovation. To read about the next Future Energy Challenge, visit http://www.energychallenge.org.

Dr. Emanuel Lambsman of American Power Conversion and a judge for the 2001 Future Energy Challenge, discusses inverter performance with Prasad Enjeti, Mark Yeary and their students at the DOE National Energy Technology Laboratory.
Vidyasagar takes on hard problems

An introduction to statistical learning theory (SLT) and randomized algorithms for NP-hard problems in robust controller synthesis were the latest topics in the Distinguished Lecture series presented by Dr. M. Vidyasagar. In the first of two lectures, Vidyasagar said that SLT, a relatively new area, cuts across several disciplines, such as stochastic processes, machine learning and neural networks. SLT, Vidyasagar said, is a counterpart to computational learning theory, which addresses issues of designing learning algorithms and their complexities. SLT provides a mathematical formalism for addressing several questions, including how machines learn new concepts based on examples; how neural networks, after sufficient training, correctly predict the output of a previously unseen input; and how one can identify a nonlinear dynamical system by observing its input-output behavior.

In his second lecture, Vidyasagar discussed problems in robust controller synthesis. By using randomized algorithms, which are allowed to fail occasionally, it is possible to evolve polynomial time randomized algorithms.

Vidyasagar received the B.S., M.S. and Ph.D. degrees, all in electrical engineering, from the University of Wisconsin–Madison. In 1989, while a faculty member at University of Waterloo, he returned to India as director of the Centre for Artificial Intelligence and Robotics in Bangalore. In 2000, he joined Tata Consultancy Services, India’s largest IT firm, where his responsibilities are to create an Advanced Technology Centre (ATC) within TCS to develop futuristic technologies of relevance to the IT industry.

Vidyasagar has received several honors in recognition of his research activities, including the Distinguished Service Citation from the University of Wisconsin–Madison. He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), the Indian Academy of Sciences, the Indian National Science Academy, the Indian National Academy of Engineering and the Third World Academy of Sciences. In December 2000, he received the Bode prize from the IEEE Control Systems Society. His current research interests are control theory, machine learning and cryptography.

Bose discusses powerful subjects

Dr. Bimal K. Bose, the Condra Chair of Excellence in Power Electronics in the Department of Electrical Engineering at The University of Tennessee–Knoxville, discussed neural networks in power electronics and their impact on energy and the environment as part of the Distinguished Lecture Series.

During his lecture on neural network applications in power electronics, Bose gave a broad introduction to the subject and then discussed several research topics, including space vector PWM of two-level and three-level inverters, flux vector and feedback signals estimation. He also discussed feedforward and recurrent ANN applications, with the goal of implementation of complete speed sensorless stator flux-oriented vector controlled induction motor drive with neural networks.

In a second lecture on drives and power electronics, Bose discussed the global energy generation scenario, electricity generation by different types of fuel and highlights of the progressive depletion of fossil fuels, focusing on the current environmental pollution problems caused by fossil fuels.

Bose added that power electronics technology has advanced tremendously in recent years, and with reduction of cost and improvement of performance, power electronics apparatus have found extensive applications in industrial, commercial, utility, military, aerospace and residential environments. He said it will play an increasing role in energy saving, environmental pollution control and industrial automation in the 21st century.

Bose is a Life Fellow of the Institute of Electrical and Electronics Engineers (IEEE). In the past 40 years of his professional career, he has made extensive research contributions in the areas of converters, PWM techniques, ac drives, electric–hybrid vehicle drives and microprocessor control, as well as expert system, fuzzy logic and neural network applications in power electronics. Bose has published more than 150 papers, authored or edited six books and holds 21 U. S. patents.

Among his many honors are the IEEE Millennium Medal, Continuing Education Award, Lamme Gold Medal, Industrial Electronics Society Eugene Mittelmann Award and the Calcutta University Mout Gold Medal. He is honorary professor at Shanghai University (China), the University of Mining and Technology and Xi’an Mining Institute (China).
EE celebrates partnership with Toshiba International Corp.

The Department of Electrical Engineering at Texas A&M University recognized its continuing partnership with Toshiba International Corp. with a reception celebrating Toshiba’s opening of a new satellite office that will provide job opportunities to engineering students and strengthen their collaborative relationship with Texas A&M.

Toshiba, the Tokyo-based technology giant currently located in Houston, hosted the grand opening of the 2,000-square-foot facility in September 2001. The facility will house three full-time employees from Houston, who will work with up to 15 Texas A&M engineering students. These employees will initially be verifying, testing and developing equipment and software, as well as translating this software.

While the satellite company is new, the relationship between the electrical engineering department and Toshiba is not. Dr. Prasad Enjeti has coordinated projects between his students and the company for about eight years, during which Toshiba has contributed about $100,000 to the department.

“I am happy to see that the collaboration we started with Toshiba in the power electronics area in the early ‘90s has given rise to this new and exciting opportunity,” Enjeti said. “I see this as a tremendous benefit to our engineering program, in particular to our undergraduate and graduate education and research. With the satellite office in town we hope to launch closer collaborative projects in power electronics of an interdisciplinary nature.”

Most recently, Toshiba assisted Enjeti and his students in creating a new fuel cell inverter that they entered into the Department of Energy’s (DOE) Future Energy Challenge (see cover story).

“Toshiba’s help in this project has been vital and has provided our team with a winning edge,” Enjeti said.

Fluor employees continue the tradition

The Department of Electrical Engineering at Texas A&M University was among several departments that received a scholarship endowment from Fluor Corporation, raised by its employees.

Fluor presented a $500,000 scholarship endowment to Texas A&M during a fundraising finale May 6 in Sugar Land.

The endowed scholarships will benefit students interested in industry sectors aligned with Fluor, including chemical, mechanical, civil and electrical engineering, construction science and business.

More than 165 Fluor employees who graduated from Texas A&M contributed to the four-year “Continuing the Tradition” campaign through payroll deductions, personal checks and stock transfer. Personal gifts totaling $125,000 quadrupled through one-to-one matching programs established by the Fluor Foundation and Texas A&M.

“The mutual values of integrity, service and excellence shared by Fluor and Texas A&M make this gift especially meaningful. These permanent scholarships from Fluor employees will help deserving students for generations to come,” said former Texas A&M President Dr. Ray M. Bowen.

Among the Fluor dignitaries attending the event was electrical engineering graduate Kevin Faske, Class of 1991, a project engineer and scholarship campaign chairman.

“Fluor employees are the cog in the wheel that maintains Fluor’s traditions of excellence,” Faske said. “A&M alumni, who are now Fluor employees, initiated this campaign and have made it a success with enthusiastic support from the Fluor Foundation.”

The Fluor gift will be counted in One Spirit One Vision, a multi-year fund-raising campaign to help Texas A&M attain national top 10 status among public universities.

Fluor Corporation provides services on a global basis in the field of engineering, procurement, construction, operations, maintenance and project management. Headquartered in Aliso Viejo, Calif., Fluor is a Fortune 500 company with revenues of $9 billion in fiscal year 2001.
Texas A&M, EE sponsors power symposium

The Department of Electrical Engineering — along with the Dwight Look College of Engineering, Electric Power and Power Electronics Institute, Institute of Electrical and Electronics Engineers (IEEE) Power Engineering Society, TXU Business Services and the National Science Foundation — hosted the 33rd Annual North American Power Symposium (NAPS) at the George Bush Conference Center.

Chaired by Dr. Karen Butler-Purry, assistant dean of engineering, and associate professor of electrical engineering, NAPS is a symposium designed to stimulate scholarly work in electrical power engineering, and to provide a forum for university faculty, students and industrial representatives to discuss research ideas and to present the results of their research.

The two-day symposium began with a plenary session about the Texas Retail Competition with Mike McCall of TXU, Gregg Hollenberg of Reliant Energy Business Services, Tom Noel of ERCOT and Jayant Kumar of the ALSTOM, ESCA Corp. as speakers. It was followed by sessions with various topics, including power system markets and restructuring to power system analysis, modeling and simulation.

Dr. Jerome Hall, president of the Institute of Nautical Archeology at Texas A&M, was the guest speaker during the conference. Tours of the Department of Electrical Engineering concluded the symposium. For more information about the symposium visit the NAPS website at http://psalserver.tamu.edu/%7Enaps2001/.

EE hosts TxTEC conference

The telecommunications area in the Department of Electrical Engineering hosted the 2002 Texas Telecommunications Engineering Consortium (TxTEC).

The TxTEC annual conference provides a forum where students, faculty and technical industry representatives can interact to learn more about research, new technology and career opportunities in telecommunications engineering.

Most attendees reaped benefits from the conference, though they had different goals in mind. Student attendee goals included gaining an overview of the industry; meeting company representatives; and networking for summer or co-op jobs, full-time employment, industry contacts for joint research and learning what types of skills they need to be involved in a particular technology.

Industry representative goals included educating students and faculty about their company; communicating to students and faculty the major technology and business trends in the industry; and meeting students and faculty for recruitment or collaboration on research projects.

University faculty and staff goals included meeting company representatives and networking for joint research collaborations, learning about industry trends and helping facilitate student and industry interactions.

TxTEC is a consortium of Texas universities and industry partners collaborating to enhance the quality and quantity of telecommunications engineering graduates from Texas universities, their subsequent contributions to the Texas telecommunications industry, and the experiences of Texas citizens served by that industry.

Current TxTEC Corporate members include Fujitsu, Motorola, Nokia, Nortel Networks, SBC, Texas Instruments and Worldcom. Academic members include Texas A&M University, Texas Tech University, The University of Texas–Arlington, The University of Texas–Austin and The University of Texas–Dallas.
Mosong Cheng

Dr. Mosong Cheng joined the department as an assistant professor in June 2002. He received his bachelor's degree in electrical engineering from the University of Science and Technology of China in 1997 and his Ph.D. in electrical engineering and computer science from the University of California, Berkeley, in May 2002.

Previously, he was a process engineer intern for Texas Instruments. His research interests include solid-state-lithography, etch and plasma and interconnection and nano-scale silicon devices, electro-optics and electromagnetics and micro electromechanical systems.

Some honors for Cheng include a Regents Fellowship from the University of California and a scholarship from Baoshan Iron & Steel Corporation.

Phillip Hemmer

Dr. Phillip Hemmer joined the department as an associate professor in January 2002. He received his bachelor's degree from the University of Dayton in 1976 and his Ph.D. in Physics from MIT in 1984.

His research interests are in the areas of solid materials for quantum optics; especially “dark resonance” excitation, materials and techniques for resonant nonlinear optics; phase-conjugate-based turbulence aberration and compensation; spectral hole-burning materials and techniques for ultra-dense memories and high temperature operation; quantum computing in solid materials, quantum communication and teleportation in trapped atoms; holographic optical memory materials; smart pixels devices; optical correlators; photorefractive applications; atomic clocks; and laser trapping and cooling.

Honors include a National Science Foundation Fellowship and Summa Cum Laude from the University of Dayton. Hemmer received the Air Force Research Laboratory Chief Scientist's award, AFOSR Star Team Award three times. He also is a member of the Optical Society of America, S.P.I.E. and American Physical Society.

Laszlo Kish

Dr. Laszlo Kish joined the department as an associate professor in September 2001. He received his Physicist Diploma from Attila Jozsef University (JATE) in Hungary in 1980 and his doctoral degree in solid state physics (Summa cum laude) from JATE in 1984.

His research interests are in the areas of electronics; new measuring principles and new sensors; non-invasive probing; nanomaterials; devices, processing and models of the underlying physics; fluctuation spectroscopy for chemical sensors; the constructive role of noise and fluctuations in physics and biology, including stochastic resonance; the physics and diagnostic application of noise and fluctuation information transfer in biological systems; and noise, quality, ageing and degradation of films and electronic devices.

Recent honors for Kish include receiving the 2001 Benzelius Prize of the Royal Society of Science of Sweden for his activities on chemical sensing via fluctuation spectroscopy. Kish also earned a Doctor of Science in physics from the Hungarian Academy of Science in 2001 and become a Docent in solid state physics (habilitation) at Uppsala University in Sweden in 1994.

Kish is editor in chief for Fluctuation and Noise Letters (World Scientific) and editor for the Journal of Nanoscience and Nanotechnology (American Scientific Publishers).

Xi Zhang

Dr. Xi Zhang began working for the department as an assistant professor in February 2002. He received his bachelor’s degree from Xidian University ( Xi'an, China) in 1982, his masters’ degrees from Xidian University in 1984 and Lehigh University in 1995, and his Ph.D. from the University of Michigan in 2001.

His interests include networking and communication systems involving design, modeling, performance analysis and implementation of flow/congestion and error control algorithms and protocols, with emphases on flow/error control and supporting Quality-of-Service (QoS) guarantees for video/audio and data multicast over the Internet with wired/wireless links/networks.

Recent honors include an IEEE Grant Award of GLOBECOM ’99, an IEEE Grant Award of INFOCOM ’97, an AT&T Bell Labs Graduate Fellowship, a National Science Foundation (NSF) Graduate Fellowship, an Overseas Telecommunications Commission (OTC) Research Fellowship, an Excellent Instructor Award from the Beijing Information Technology Institute, and First Prize of Scientific Invention from the Ministry of Electronics Industry of China.
Karen Butler-Purry
Dr. Karen Butler-Purry, associate professor in the Department of Electrical Engineering, was named assistant dean of engineering for the Dwight Look College of Engineering at Texas A&M University.

In her new position, Butler-Purry, also the assistant director of the Power Systems Automation Laboratory in the electrical engineering department, will work with the college’s graduate programs. She will split her time between her duties as assistant dean and her teaching and research activities in the electrical engineering department.

Butler-Purry’s research interests are in the areas of distribution automation and intelligent systems for power quality, state estimation, equipment deterioration and fault diagnosis.

Among her recent honors, Butler-Purry was presented the B. P. Amoco for Teaching Excellence Award at the TEES fall meeting in 2000 and the 1999 Office of Naval Research Young Investigator Program Award. She also was named a 1998-99 Montague Center for Teaching Excellence Scholar and in 1995 she was awarded the National Science Foundation (NSF) Faculty Career Award.

Andrew Chan
Dr. Andrew Chan, professor for the department, was elected to the rank of Fellow of the Institute of Electrical and Electronic Engineers (IEEE), one of the highest distinctions for the organization.

Nominations are initiated by IEEE members and the public, then reviewed by a panel of peers. Their recommendations are submitted to the IEEE Awards Board for approval by the IEEE Board of Directors.

Chan’s research interests include digital signal processing, image processing, wavelets, nonlinear optical propagation and numerical methods.

He has been with the department since 1976 and recently was awarded the Halliburton Professorship.

Aniruddha Datta
Dr. Aniruddha Datta, professor of electrical engineering, was named a Texas Engineering Experiment Station (TEES) Special Research Fellow. He joined the department in 1991 as an assistant professor. His areas of interest include adaptive control, parametric robust control, decentralized control and process control.

Edward Dougherty
Dr. Edward Dougherty, professor in the department, was presented the Halliburton Professorship by the Dwight Look College of Engineering.

Dougherty has been a leader in the application of morphological granulometries to texture classification and the design of optimal and adaptive nonlinear filters, is the editor of several technical journals, and has chaired a number of conferences. He joined the department in 1996.

Mehrdad Ehsani
Dr. Mehrdad Ehsani received the James R. Evans Avant Garde Award from the Institute of Electrical and Electronics Engineers (IEEE) Vehicle Technology Society for his work with hybrid electric vehicles.

He joined Texas A&M in 1981 and founded the power electronics and motor drives program in the department. Ehsani also received the 2003 IEEE Undergraduate Teaching Award for “outstanding contributions to advanced curriculum development and teaching of power electronics and drives.”

His research interests include power electronics, motor drives, electric and hybrid vehicles, superconductive magnetic storage (SMES), aerospace power systems, specialized power systems, control systems, energy storage systems, high voltage direct current (HVDC) power transmission, applications of microcomputers to power control, pulsed power systems, high voltage engineering and electrical failures and hazards.

Ehsani is a Fellow of IEEE. Other recent accomplishments include being named the Ruth and William Neely ’52/Dow Chemical 2001 Fellow by the Dwight Look College of Engineering.

Prasad Enjeti
Dr. Prasad Enjeti, professor, was among a group of faculty members selected for the 2001 Texas A&M Faculty Fellows Program.

The goal of the program is to help the university retain top faculty members, particularly those who are emerging as nationally recognized leaders in their fields.

Enjeti also was awarded the Outstanding Faculty Award from the Department of Electrical Engineering. The award recognizes faculty members for their continuous endeavors towards excellence and promotion of the continued success of the department.

Enjeti joined the department as an assistant professor in 1988. His primary research interests are advanced converters for power supplies and motor drives, power quality issues and active power filter development, utility interface issues, and “clean power” converter designs. He has two United States patents and has licensed two new technologies to the industry.


Costas Georgiades
Dr. Costas Georgiades has been appointed inaugural holder of the Delbert A. Whitaker Chair in Electrical Engineering.

Whitaker’s endowment is designed to support teaching, research, service and professional development activities of an outstanding scholar in the Digital Signal Processing area.

Georgiades, an IEEE Fellow, leads the telecommunications and signal processing area. He has been with the electrical engineering department since 1985 and currently is a professor. His research interests are in the application of information, communication and estimation theories to the study of communication systems, with specific interest in optimum receiver design, mobile radio, spread-spectrum, multicarrier modulation, space-time coding and optical systems.

Jo Howze
Dr. Jo Howze was awarded the Outstanding Faculty Award of the Department of Electrical Engineering. The award recognizes faculty members for their continuous endeavors towards excellence and promotion of the continued success of the department.

Howze, a professor in the department, has been with Texas A&M since 1972. His interests are in control systems, theory and applications, dynamical systems modeling, linear systems, engineering systems design and design, methodologies, hybrid vehicles, optimization, automotive control systems, linear algebra and semiconductor processing controls.

Laszlo Kish
Dr. Laszlo Kish won the Benzelius Prize from the Swedish Royal Society of Science and received the Doctor of Science from the Hungarian Academy of Science.

The Swedish Royal Society of Science was established 300 years ago. Professor Erik Benzelius, an archbishop, was its first secretary. The society has been located at Uppsala University, the oldest university of Scandinavia.

In the memory of Benzelius and the establishment of the Society, the Benzelius Prize is given every year in six different categories to scientists achieving outstanding achievements. Kish received the award in the subject category of technological and economical Impact for his activity in chemical sensing methods via electrical noise spectroscopy.

Kish, who joined the department in 2001, also received the Doctor of Science title from the Hungarian Academy of Science, which is given to scientists who belong to the internationally important contributors of the field in Hungary. To receive the title, an international impact must be proven, with at
least 250 independent citations of the work done by the scientist, who must then defend his thesis. Kish received the maximum number of points available.

Mi Lu
Dr. Mi Lu, professor of electrical engineering, was named the Eugene E. Webb '43 Fellow by the Dwight Look College of Engineering.

Lu, who has been with the department since 1987, has served as associate editor for the Journal of Computing and Information and the Information Science Journal, and was conference chairman for the 5th International Conference on Computer Science and Informatics. Her research interests include parallel computing, distributed processing, computer architectures, computer networks, computational geometry, parallelizing compiler and VLSI Algorithms. She also is the author or co-author of more than 90 published technical papers.

Krishna Narayanan
Dr. Krishna Narayanan, assistant professor, was named a TEES Select Young Faculty honoree.

Narayanan joined the department in 1999.

His research interests are in the areas of communication theory and advanced signal processing for communications. Specific areas of interest include modulation and coding, including turbo codes and TCM, interference rejection, equalization and coding for magnetic recording and wireless communications. TEES Fellows and Select Young Faculty honorees receive awards of $5,000 to support their research activities.

Cam Nguyen
Dr. Cam Nguyen was named a 3M Fellow by the Dwight Look College of Engineering.

Nguyen, a professor, has been with the department since 1990. His current research interests encompass both the theoretical and practical aspects of RF, microwaves, millimeter waves and electromagnetics, with concentration on the developments of novel RF, microwave and millimeter-wave integrated circuits, antennas, receivers, transmitters and sensors for wireless communications, and subsurface and surface sensing for different engineering applications. He has written one book, several book chapters, more than 100 papers, edited two books and given several invited lectures.

Narasimha Reddy
Dr. Narasimha Reddy was honored as a TEES Fellow.

Reddy, an associate professor, has research interests in Multimedia, I/O systems, Network QOS, and Computer Architecture. Reddy received an NSF CAREER award in 1996 and an Outstanding Professor award from Texas A&M during the 1997-98 school year. He has been with the department since 1995.

B. Don Russell
Electrical engineering professor, Dr. B. Don Russell, was among a select group drawn from industry, government and academia working to identify energy issues where the National Academy of Engineering (NAE) can provide guidance.

The group is divided into five subgroups for more in-depth discussions. Russell's subgroup is electric power and includes representatives from the U.S. Senate, Stanford University, the Electric Power Research Institute and the Department of Energy.

He also has been appointed vice chair of an NAE peer selection committee. The peer committees are composed of appointed NAE members, chosen with consideration of their technical expertise and other factors. The committees' responsibilities include reviewing and evaluating the nominations of candidates for NAE membership and making recommendations on candidates.

Russell, who is associate vice chancellor and associate dean of engineering, is a past president of IEEE's Power Engineering Society (PES) and a member of the IEEE governing board. He holds the first patent for microcomputer-based protective systems and nine patents for digital techniques applied to high impedance fault detection.

Russell's many awards include a 1997 “R&D 100” award — the “Oscars of invention” — for inventing one of the 100 most technologically significant new products of the year. Also in 1997, he won IEEE's highest technical award, the Herman Halperin Electric Transmission and Distribution Award, for outstanding contributions to power engineering.

Russell was awarded the 1991 Outstanding Engineering Achievement Award by the National Society of Professional Engineers (NSPE). He is a fellow of IEEE and member of NAE.

Edgar Sánchez-Sinencio
Dr. Edgar Sánchez-Sinencio, professor of electrical engineering, has been named holder of the TI/Jack Kilby Chair in Analog Engineering at Texas A&M.

Sánchez-Sinencio is the second holder of the $1.5 million endowed chair, which was established by Texas Instruments Inc. of Dallas in 1998 as part of the company’s $5.1 million gift to the Department of Electrical Engineering. The chair is named for Jack Kilby, former distinguished professor in the department, who invented the integrated circuit at Texas Instruments in 1958 and won the Nobel Prize in Physics for his invention in 2000.

Sánchez-Sinencio’s research interests are in the areas of continuous-time integrated circuits, analog built-in testing, low-voltage/low-power mixed signal circuits and RF communication circuits. He leads the analog and mixed-signal group and is director of the Analog and Mixed-Signal Center at the Texas Engineering Experiment Station.

Sánchez-Sinencio is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE). Among his numerous awards are the 1997 IEEE Circuits and Systems (CAS) Darlington Award, the 1996 IEEE CAS Outstanding Young Author Award (with graduate student Alex Reyes) and the 1995 IEEE CAS Guillemin-Cauer Award for his work on cellular networks. In 1996, Sánchez-Sinencio received the Texas Senate Proclamation No. 373 for outstanding accomplishments in recognition of his research. INAOE awarded him its first honorary doctorate in 1995.

Marlan Scully
Dr. Marlan Scully, distinguished professor in the Departments of Physics and Electrical Engineering, was elected into the National Academy of Sciences in recognition of his distinguished and continuing achievements in research.

The National Academy of Sciences (NAS) is a private, non-profit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare.

Election into the Academy is considered one of the highest honors that can be accorded a scientist or engineer. The Academy membership is comprised of approximately 1,900 members and 300 foreign associates, of whom more than 170 have won Nobel Prizes.

Scully joined Texas A&M in 1992. He holds a distinguished research chair with the Texas Engineering Experiment Station and serves as director of both the Center for Theoretical Physics and the newly formed Institute for Quantum Studies within the College Of Science at Texas A&M.

Other professional honors include the Adolph E. Lamb Medal and the Charles H. Townes Award from the Optical Society of America, the Franklin Institute Cresson Medal, the Alexander Von Humboldt Senior Faculty Award and the Distinguished Achievement Award in Research from the Texas A&M Association of Former Students. Scully also has been an Alfred P. Sloan Fellow, a Guggenheim Fellow and he is a Fellow of the American Association for the Advancement of Science, the American Optical Society and the American Physical Society.

Chanan Singh
Dr. Chanan Singh, department head, was designated a Regents Professor by the Board of Regents of The Texas A&M University System.

Nine faculty and staff members are designated Regents Professors from -continued
Watson, who joined the electrical engineering department in 1983 as a professor, has received an award from the American Association for the Advancement of Science and the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring. She also is an IEEE Fellow.

Steve Wright
Dr. Steve Wright, electrical engineering professor, was among the 12 members of the 2002 class of Texas A&M’s University Faculty Fellows honored.

Henry Gongora
Henry Gongora received the Outstanding Staff Award for his outstanding work performance. Gongora, the property manager for the department, began working at Texas A&M in 1991 as an electronic technician. He received his associate’s degree from Texas A&M University’s Institute of Electrical Science and earned degrees from several other technical institutes. Previously he worked for Sears and was the owner and manager of a restaurant.

Linda Currin
Linda Currin was awarded Outstanding Staff Award by the department. Recipients are nominated by their coworkers for their outstanding work performance. The award recognizes support staff members for their continuous endeavors towards excellence and promotion of the continued success of the department.

Karan Watson
Dr. Karan L. Watson, professor of electrical engineering, has accepted the position of dean of faculties and associate provost at Texas A&M. Watson’s appointment began in February. She succeeded Janis P. Stout, who retired in January.

Making Waves

The following recent graduates have elected to pursue careers in the academia:

Hicham Bouzekri joined Al Akhawayn University in Ifrane, Morocco in 2002. Bouzekri’s interests are in wireless communications. His advisor was S. Miller.

Babak Fahimi joined the University of Missouri, Rolla in 2002. Fahimi’s interests are in motor drives and controls — noise and vibration control in switched reluctance motor drives. His advisor was M. Ehsani.

Hongwei Gao joined the University of Montana in 2002. Gao’s interests are in power electronics and motor drives — sensorless switched reluctance motor drives. His advisor was M. Ehsani.

Tiffany Jing Li joined Lehigh University in 2002. Li’s research interests are in telecommunications. Her advisors were K.R. Narayanan (chair) and C.N. Georghiades (co-chair).

Denise Martinez joined Tarleton State University in 2001. Martinez’s interests are in controls, and her advisor was Jo Howze.

Daryl Reynolds joined the University of West Virginia in 2002. Reynolds’ interests are in telecommunications and his advisor was X. Wang.

Predrag Spasojevic joined Rutgers University in 2001. Spasojevic’s interests are in telecommunications, and his advisor was C. Georghiades.

Murat Uysal joined the University of Waterloo, Canada in 2002. Uysal’s interests are in telecommunications, and his advisor was C. Georghiades.

Shouli Yan joined the University of Texas at Austin in 2002. Yan’s interests are in analog and mixed signal. His advisor was E. Sanchez-Sinencio.

Mark Yearly joined the University of Oklahoma in 2002. Yearly’s interests are in signal processing, and his advisor was N. Griswold.

Ikjun Yeom joined the Korean Advanced Institute of Science and Technology in 2001. Yeom studied computer networks, and his advisor was A.L. Narasimha Reddy.

among the A&M System’s nine universities, eight agricultural and engineering agencies and its health science center. Singh, an IEEE Fellow, has held the Haliburton and Dresser Professorships and received the Association of Former Students’ Distinguished Achievement Award for research. The University of Saskatchewan awarded him a D.Sc. for his international recognition in research and education, and Singh also received the Outstanding Power Engineering Educator Award from the IEEE Power Engineering Society.

Weiping Shi
Dr. Weiping Shi was awarded the Outstanding Faculty Award of the Department of Electrical Engineering. The award recognizes faculty members for their continuous endeavors towards excellence and promotion of the continued success of the department.

Shi, an associate professor for the department, began working for Texas A&M in 2000. His research interests include computer-aided design of Very Large Scale Integration VLSI CAD, including physical design, parasitic extraction, fault diagnosis, variational analysis and process synthesis. Previous awards include a best paper award from the Design Automation Conference and a research initiation award from the National Science Foundation.

Karan Watson
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undergraduate

AMD Undergraduate Research
John Barker
Stephen Campbell
Brad Cobb
Christopher Davis
Timothy Fischer
Jonathan Hansen
Na Lei
Krystal Moore
Carl Walther
Jimmy Wingfield

Bolton Scholarship/Kennedy
Darren Ahr
Anand Chawla
Deepak Janakiraman
Wayne Pellerin
Clinton Rand
Ramy Sabet
Albert Wewengkang

Bolton Scholarship/Thigpen
John Sublette

Bolton Scholarship/Whitaker
Idan Anis
Rida Assaad
Brian Hargraves
Dung Ngoc Hoang
Andrew Meier
Chiranjib Mukherjee
Ming-Jer Wang
Matthew Webster

Central Power & Light-Electrical Engineering
Adrian Gonzalez
Eric Schrock

Chevron Texaco-Electrical Engineering
Kurt Champion
Cory Cress

CISCO Systems
Ana Garza
Richard Hall
Tam Gia Minh
Wayne Pellerin

Donald R. Ray Scholarship
Jonathan D. Sinclair

EPPE
Modupe Ajabola
Thomas Balez
Steven Campbell
Anand Chawla
Lindsay Clem
Christopher Davis
Derrick Haas
Sean Patric Heinroth
Leslie Fraley
Sang-Shin Kwak

EPPE, cont.
Collin Martin
Andrew Meier
William M. Odom
Hien Huu Nguyen
Adam Snider
Slavko Vasilic
Ming-Jer Wang

Friends of EE
Steven Campbell
Chris Davis
David Dorsey
Arif Oduncu
Daniel Prati
Alan Preston
Jessica Thompson

Fluor Aggie Endowed Scholarship
Steven Campbell
Derrick Haas

Fred D. Lege III Scholarship
Crystal Coe
Carl Walther

James M. Crawford Scholarship
Graham Booker
Brian Davis

Lewis M. Haupt Scholarship
Tyler Beers
Timothy Fischer

Kevin D. Faske Scholarship
Andrew Meier

Marvin W. Smith Scholarship
Gaurav Gang
Laura Gurley
Aaron Patton
Brandon Turner
Wesley Weibel

M.J. Pickett Memorial Scholarship
Ruchna Bhagat
Gregory Collins
David Dorsey
Elizabeth Fausak
Jeff Holly
Ji Hoon Kang
Eric Lasmana
Jeremy Ross
Eric Schendel
Sigil Simon
Brian Steele
Russell Wedelich
Reid Wilbur

Nortel Networks
Ryan Brown
Ana Garza
Jonathan Hansen
Jeff Holly
Na Lei
Bryan Murray
Wayne Pellerin
Andrew Puryear
Alan Rankin
Feng Kun Tang
Johnny Tran
Ching-Wen Wang

Raymond Van Hook
Jeffrey Cobb
Jennifer Gullickson
Amanda Ott
Adam Snider
Zach Sulak
James Wingfield

Robert D. Chenoweth
Brian Whitaker

Schlumberger Foundation
George Buckmaster
Karl Jablonski

Shell Chemical
J. Campbell Barker
David Hoelscher
Daniel Humphrey
Carl Walther
Ching-Wen Wang

TxTEC
Rajan Chandra
Nirav Chokshi
Bradley Cobb
Ana Garza
Changyi Gu
Deepak Kumar
Ching-Fu Lan
Laina Lei
Wayne Pellerin
Mohammed Pulak
Andrew Puryear
Andrew Puryear
Reinhard Stebner
Feng-Kun Tang
Ching-Wen Wang
Ming-Jer Wang
Yi Yu
Jun Zheng

Willard P. Worley Scholarship
Lindsay Clem
Jayson Roe

graduate

Applied Materials
Zhuo Li

Computer Engineering
Seong Soo

Dept. of Education
Bradley Cobb
Xiaohua Fan
Will Price
James Wingfield
Jianhong Xiao

Electrical Engineering Department
Lin Chen
Chulmin Han
Elizabeth Huse
Prabhu Inbarajan
Clark Jarvis
Sangshin Kwak
Jae Hoon Kwan
Choong Hoon Lee
Arif Oduncu
Nouman Raja
Kumar Raman Senthil
Sathya Raman
Pradeep Sarvepalli
Niraj Shidore
Xiaoqing Su
Annes Sutarwala
Bhavana Thudi
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Nortel Networks
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Deepak Gilra
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Shengjie Zhao
Zeming Zhu

NSF
Hyokwon Nam
Krishna Kurpad
Xionan Ma

Texas Instruments
Shanfeng Cheng
Jin Ho Choi
Husein Dinc
Garduno Hernandez
Xiao Jianhong
Youngmin Kim
Andreas Larsson
Sanghoon Park
Pradeep Sarvepalli
Bharath Thandri
George Thomas
Sunita Venkataraman

TxTEC
Hicham Bouzekri
Byung Kyo Choi
Tianli Chu
Yong Guan
Angelos Liveris
Chris Rodenbeck
Former EE student endows faculty chair

Former electrical engineering student, Delbert A. Whitaker of Dallas, has endowed a prestigious faculty chair in the Department of Electrical Engineering.

The Delbert A. Whitaker Chair in Electrical Engineering will support teaching, research, service and professional development activities of an outstanding scholar in Digital Signal Processing. The university will match Whitaker’s $500,000 gift.

“Mr. Whitaker has contributed to the department in many ways, and the impact of his efforts will be felt for many years to come,” said Dr. Chanan Singh, electrical engineering department head. “We are truly grateful to him for this endowment and all that he has done for the department in the past.”

In addition to his current endowment, Whitaker helped secure TI support of $6.4 million for analog design and mixed-signal testing efforts in the university’s electrical engineering and engineering technology programs. He’s also personally established two scholarships in the electrical engineering department under the Bolton Scholars Program.

Whitaker’s current gift counts in the One Spirit One Vision Campaign, Texas A&M’s multi-year fund-raising campaign aimed at helping Texas A&M attain national top 10 status among public universities. He also chairs the committee that leads the electrical engineering department’s fund-raising efforts in the campaign.

Whitaker earned a B.S. in electrical engineering from Texas A&M in 1965, then worked in General Electric’s nuclear power generation business. In 1969 he joined TI, where his 31-year career included stints in various semiconductor product areas plus marketing and sales. He served as senior vice president of TI’s U.S. Semiconductor Business in the late 1980s and then as senior vice president of TI’s Worldwide Analog and Standard Logic business from 1990 until his retirement in 2000.

Gift and Endowment Information

Gifts and endowments help in attracting and educating top quality students, rewarding and retaining top quality faculty and promoting the growth of the department. We would be delighted to discuss further with you how to make a gift or establish an endowment in your own name or the name of a loved one. Endowments may also take the form of naming a laboratory or the department. Gifts of any size may also be made to the Electrical Engineering Development Fund to help the growth of the department.

Carl Jaedicke
Assistant Vice President of Development
Dwight Look College of Engineering
Texas A&M University
College Station, TX 77843-3126
Phone: (979) 845-5113
E-mail: jaedicke@tamu.edu

Dr. Chanan Singh
Department Head
Dwight Look College of Engineering
Texas A&M University
College Station, TX 77843-3126
Phone: (979) 845-5113
E-mail: singh@ee.tamu.edu