

# Currents

ELECTRICAL ENGINEERING • TEXAS A&M UNIVERSITY • WINTER 1997

## One to One: From the Department Head Newsletter Back on Track

Even though you've not received a newsletter publication for a while, our faculty has been busy adding new knowledge to the state of the art of electrical engineering and educating top quality students. From 1991 to 1996, we produced 137 Ph.D., 314 M.S., 86 M.E., and 899 B.S. graduates. Currently, enrollment stands at 370 graduate and 1074 undergraduate students.

We are proud to resume newsletter publication. Won't you take time to read about some recent department activities? You can even access departmental information on our website at <http://ee.tamu.edu/>. While you're there, access the newsletter online. Another new feature of the website, for the convenience of our alumni, is the Alumni Bulletin Board where you can leave messages or comment on discussion topics. You can even use the form on the back of the newsletter in writing to us.

I hope this new ability to interact on the web will help foster closer ties among the alumni and with the department. Over the past seven months I have visited some of our alumni. I have been touched by their deep sense of caring for the department, for their desire to help and their generosity.

I may not be able to visit all of you personally, but please be assured that we look forward to hearing your views and your success stories. Until next time . . .

*Chanan Singh*

## Highlights

- 
- 2 New Department Head Appointed
- 4 Funding for DSP Master's Program
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## Electrical Engineering Welcomes Radiology Expert



*U. S. Army*

A delegation from Aggieland surprised new faculty member Dr. Anna Kuravilla Chacko at a San Antonio ceremony Sept. 22. Dr. Chanan Singh, department head, presented Dr. Chacko with a plaque welcoming her as EE adjunct professor during the monthly awards program at Brooke Army Medical Center (BAMC).

Dr. Chacko brings significant expertise in virtual radiology networks, broadband handheld ultrasound scanners and 3-D data sets for virtual manipulation to the EE department. An active-duty colonel in the United States Army Medical Corps, Dr. Chacko is radiology consultant to the Army Surgeon General and Chief of Radiology for BAMC at Fort Sam Houston, Texas.

Dr. Singh, and staff members Debbie Hanson and Phyllis Doughty were present at the awards ceremony. The Texas A&M group toured BAMC radiological work areas for scanning images from X-ray plates, for converting from analog to digitally displayed images, and for viewing and interpreting images.

Dr. Chacko has played a significant role in advancing radiological technology at BAMC and will bring that same progressive attitude to her role as adjunct professor at Texas A&M University. Welcome, Dr. Chacko, and "Howdy!"

## New EE Department Head

Dr. Chanan Singh is the new head of the electrical engineering department in the Dwight Look College of Engineering at Texas A&M University. Singh succeeds interim department head Dr. Norman Griswold.

At Texas A&M since 1978, the electrical engineering professor specializes in electric power systems, power electronics, and urban transportation systems and brings a wealth of experience to the position. Singh managed the National Science Foundation's (NSF) power systems program where he helped initiate "Innovative Power Engineering

Education in a Changing Environment." The program has funded several universities and is expected to shape power education for the 21st century.

Singh worked for the transportation ministry in Canada and has done consulting for companies in Brazil, South Africa and Korea as well as for American firms such as MCI, Exxon, and Houston Lighting & Power. He has received numerous awards for research funded by the NSF, NASA, the Electric Power Research Institute and has written or co-written four books on power systems and nearly 170 technical papers.

Honored this year by the University of Saskatchewan in Canada, Singh was awarded a Doctor of Science degree to

recognize his contributions to research and education. He is a fellow of the Institute of Electrical and Electronics Engineers, having received the Ph.D. and the master of science degree from the University of Saskatchewan and his bachelor of science from India's Punjab University.



*Dr. Chanan Singh,  
department head*

## Re-Engineering Education

Just how does one re-engineer education? Start with an engineer! And that's exactly what the educators involved in MERIT 2000 are—professors of the Department of Electrical Engineering's Electric Power & Power Electronics Institute (EPPEI).

Drs. Mladen Kezunovic, Ali Abur, and Garng Huang constitute the Texas A&M team for this National Science Foundation effort to incorporate technological and industry developments into curriculum.

Principal investigator Dr. Kezunovic is spearheading the MERIT 2000 project in conjunction with the rest of the Texas A&M team as well as educators from Washington State University. The project's utility company and vendor sponsors bring real-world needs to the table. Texas A&M sponsors include Houston Lighting & Power, TU Electric, ABB-TTI and Bailey Network Management, while Washington University sponsors include Puget Sound Power & Light Co., Pacific Gas & Electric Company, Schweitzer Engineering, and Incremental Systems, Inc.

Tasks for Year 1 are well under way. Texas A&M faculty representatives traveled to Dallas on June 13 for evaluation meetings on task assignments and schedules, software needs for curriculum development, and overall plan execution. To implement Texas A&M's work, the EPPEI team meets every week to define simulation ex-

amples and issue student research assignments.

Current power engineering education is constrained by the difficulty of fully analyzing the large and complex power system. The project's primary objective is to coordinate the creation of a simulation environment for students, allowing study at many levels of problem size and detail in a familiar and user-friendly computer framework.

The MERIT 2000 researchers work with a three-pronged education concept that encompasses a multidisciplinary approach, use of simulation technology, and creation of innovative teaching methodologies. Curriculum issues range from energy sources and conversion to distribution systems and automation—and from deregulation and market competition to communication skills, teamwork, and marketing strategies.

The hands-on research work, coordinated by the faculty members, will be accomplished by EPPEI graduate students Goran Drobnjak, Zhao Qing, Bei Gou, and Fernando Magnago. These students will be a creative force in defining and implementing a new concept in power engineering education for the 21st century. Curriculum availability is expected in the year 2000.

The new multidisciplinary curriculum will enhance the existing fundamental power core courses. New subjects include customer relationship/marketing, advanced technology, economic considerations/finances, and new applications such as renewable energy sources, and distribution/substation

automation. All new teaching models and simulations will eventually impact electrical engineering education nationwide. Specifically at Texas A&M, ELEN 459 and 460, as well as a variety of graduate courses, will be affected.

As this curriculum re-engineering takes place, EE's electric power majors will benefit not only from updated and flexible coursework, but also from an expanded database of software models and related simulation examples available for experimentation in the laboratory and on the World Wide Web.

### OBJECTIVES AND SIGNIFICANCE OF MERIT 2000

- ✿ Create an example of a new re-engineered curriculum for undergraduate and graduate power engineering education.
- ✿ Involve various segments of the utility and manufacturing industry as well as the consulting and engineering services.
- ✿ Exploit unique expertise of the university teams and industry advisors to explore the simulation technology and related benefits.

**Related Website**  
<http://ee.tamu.edu/~eppe/proj01.htm>



It's like a computer game—only bigger! It's a flight simulator, an altered Air Force T37 trainer cockpit, with three color video projectors creating lifelike landscapes on front and peripheral vision screens. The simulator flies like its mathematical big brother, a twin-engine general aviation airplane, sitting in the hangar at the Riverside Campus of Texas A&M University.

And even though the simulator will never see blue sky, it is a key instrument in the research for creating and debugging flight software called the General Aviation Pilot Advisor and Training System (GAPATS). Funded by NASA Langley Research Center and supported by the Texas Advanced Technology Program, GAPATS researchers aim to develop and flight-test a prototype smart cockpit computing system.

Nearly \$1 million over the past several years has been invested into this software technology which is divided into two components—navigation system display software, conducted primarily by Texas A&M, and pilot advisory software, carried out by Knowledge Based Systems, Inc. (KBSI) of College Station, Texas.

Just what issue motivated the proposal for this project? Safety! The idea is to design software that will warn pilots in time to avoid catastrophe. Dr. John Painter, professor of electrical engineer-

ing, and Dr. Donald T. Ward, professor of aerospace engineering, at Texas A&M are guiding the work to culminate in flight tests in the twin-engine research aircraft that Dr. Ward will pilot.

Flying a plane with this advanced flight software is a far cry from computer arcade games. To maintain safe flight, the pilot must be aware of all instrument panel displays. There's the head up display (HUD) projected on the plane's windshield that the pilot views during landing approaches and other maneuvers. With this system, in bad weather the pilot continues to view the windshield for the computer-displayed



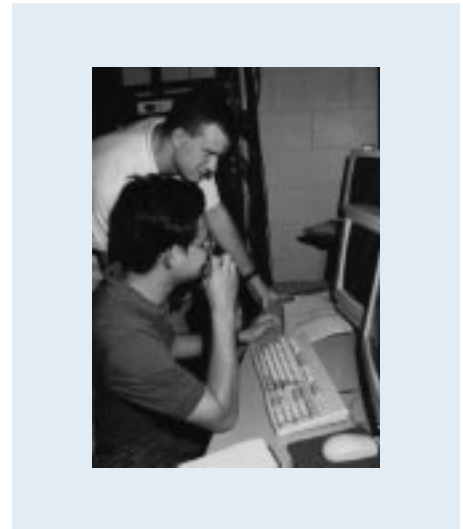
image of the runway—in the very place it will appear when the plane breaks through the clouds. Then there's the head down display (HDD) video panel for the pilot to view navigational map plots and messages from the Pilot Advisor software.

The Pilot Advisor is a computer system that "knows" the rules for flying in standard aircraft maneuvers, such as approach to landing. The artificially intelligent Flight Mode Interpreter identifies the current maneuver of the plane through measurements from the throttles, altimeter, and airspeed sensors. The Interpreter also uses

information provided from the Global Positioning System, giving the aircraft's true position within a few hundred feet. All this is processed and displayed as messages for the pilot using Air Traffic Control procedures. It's like having two brains—the pilot's and the artificial intelligence of the Flight Mode Interpreter.

As great as the software is, it wouldn't exist without the people—Drs. Painter and Ward, Wes Crump and his three industry professionals from KBSI, and the graduate students. These master's and Ph.D. candidates from electrical engineering and aerospace engineering number seven to ten at any given time—even some undergraduates are helping, all working hard to ready the engineering prototype for testing.

It's no game—the present results are so good that researchers are eager to get GAPATS in the air!



**Related Website**  
<http://ee.tamu.edu/~phyllis/News/smartplanes.htm>

## Karen Butler Honored by National Technical Association

Dr. Karen Butler, assistant professor of electrical engineering, is one of 50 professionals recognized by the National Technical Association (NTA) in the second annual Top Minority Women in Science and Engineering. The association considers professional achievements and awards as well as community

service and leadership in selecting among nominees who have made outstanding contributions to academia, industry, government, and the nonprofit sector.

At Texas A&M since 1994, Butler's interests include computer and intelligence systems applications to power distribution systems, distribution automation and management, and fault diagnosis. She is assistant director of the Power Systems Automation Laboratory in the electrical engineering department.

Butler is a mentor in several programs targeting minority and female engineering students. She also founded the Eva and Percy Butler Scholarships, named for her parents.

The NTA was established in 1925 and is the nation's oldest technical association for minorities in engineering and technology.

**Related Website**  
<http://ee.tamu.edu/~klbutler/>

## Funding Received from Texas Instruments for DSP Master's Program

Texas Instruments has sponsored a Texas A&M University Master's Program in Digital Signal Processing for the last two years and has provided \$95,000 funding for this year.

Recognizing that there is, and will be, a high demand for graduates with DSP knowledge and experience, the electrical engineering department established the program in 1995. The program's main goal has been to educate students for DSP careers in the information technology industry by emphasizing the DSP implementation of computationally intensive algorithms.

"We are very pleased with the Texas Instrument support. They and other DSP companies are experiencing a shortage of graduates trained in the DSP area. This shortage is what we are trying to overcome by offering this program," said Dr. Nasser Kehtarnavaz, the program's principal investigator.

The program has educational and research components. The educational component consists of DSP courses and lab work. The research component consists of research projects in signal processing, image processing, and telecommunications.

**Related Website**  
<http://ee.tamu.edu/~dsplab/>

## Narendra First Distinguished Speaker

First in the Distinguished Speaker Series, Dr. Kumpati S. Narendra from the Center for Systems Science, Yale University, New Haven, Connecticut, spoke to students, faculty and visitors Thursday, Oct. 23.

The tremendous efficiency of control strategies found in the biological world has inspired engineers for centuries. In recent decades, control engineering in particular has appropriated terms such as adaptation, learning, pattern recognition, and artificial intelligence from psychology and life sciences. The current interest in intelligent control represents the latest evolution in this trend. Control systems, it is argued, require intelligence to operate efficiently in complex dynamical environments possessing a high degree of uncertainty.



*Dr. Narendra addresses students and faculty fascinated with the concept of biological control strategies impacting EE research.*

In his lecture Dr. Narendra adopted the perspective that when such advanced capabilities as pattern recognition, learning, robust control, and knowledge-based systems are integrated, complex systems can result that respond appropriately to very challenging environments.

Although the main thrust of his early research was in the areas of stability theory, adaptive control, and learning automata, since 1988 his interests have shifted to the intelligent control of complex systems using neural networks.

Dr. Narendra's latest book, entitled "*Identification and Control of Dynamical Systems Using Neural Networks*," is in progress.

## Karan Watson Receives Presidential Award

Professor of electrical engineering and associate dean Dr. Karan Watson was one of 10 winners to receive the 1997 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring.



The Sept. 11 ceremony in Washington, D.C., capped a day-long symposium on mentoring. The awards, administered and funded through the National Science Foundation, recognize outstanding mentoring efforts and programs to increase the participation of under represented groups in science, mathematics and engineering from kindergarten through graduate school.

Dr. Watson has directly mentored hundreds of women and minority students during her career. At Texas A&M since 1983, she has been instrumental in securing funding to support undergraduate programs aimed at recruitment and retention of under-represented groups in engineering.

## New Focus Area Created

Department head Dr. Chanan Singh has created a new focus area in electrical engineering. The Biomedical Imaging Group brings together faculty members from different disciplines within the department to focus on the acquisition and analysis of biomedical images.

A set of core courses provides the student with background in both medical imaging instrumentation and image processing and analysis while elective courses are available in both areas. Laboratories have been established in computer-assisted diagnostics, magnetic resonance imaging, and optical imaging.

Faculty consists of Drs. Andrew Chan, Edward Dougherty, Norman Griswold, Nasser Kehtarnavaz, Robert Nevels, Chin Su, and Steven Wright, area leader.

## Kumar Pandey Accepts New Post



Faculty and staff of the Department of Electrical Engineering at Texas A&M University gave Dr. Kumar Pandey a warm farewell at the Faculty Club Nov. 12. After 20

outstanding years of service to the engineering program, Dr. Pandey assumes the position of head of the Department of Electrical and Computer Engineering at the University of Alabama at Tuscaloosa.

Dr. Pandey joined the Texas A&M faculty in 1977 as an associate professor after working for about six years in the electronics industry. While at Texas A&M, Dr. Pandey succeeded in establishing a nationally and internationally respected program for crystal growth of electronic materials.

Dr. Pandey received several prestigious awards at Texas A&M for research and teaching, including: 1989 Halliburton Professorship, 1994 Brockett Professorship, and 1996 Teacher/Scholar Award.

Dr. Pandey was professor in the EE department and director of the NSF Center for Electronic Materials, Devices and Systems (CEMDAS) at Texas A&M prior to accepting the Alabama position.

## New ELEN420 Lab Opens

In spring 1998 \$23,000 received from the Engineering Equipment Access Fees will benefit EE students. A new undergraduate laboratory for ELEN420 has been established in Room 111A of Zachry Engineering Center, says Dr. Shankar P. Bhattacharyya, professor and area leader for Controls Group.

The laboratory has three major stations for 12 different experiments:

- ✿ Inverted Pendulum - stabilization of vertical object on a platform
- ✿ Position and Velocity Control - analog and digital servo mechanisms
- ✿ Process Control - level and flow control using proportional-integral-derivative control



*Dr. Kai Chang (center) poses with Texas A&M electrical engineering Ph.D. candidates Claudio Montiel (left) and Adolfo Cheverria Del Rio (right) as well as others at the presentation booth in Denver's International Microwave Conference in June. The group displayed their work for the 10,000 plus in attendance from industry and academia at the three-day event.*

## Signals From Space

Dr. Costas Georghiades, professor and co-director of VLSI-Telecommunications Research Center, and graduate student Predrag Spasojevic worked for two years on a NASA Center for Space Power research project designing a satellite modem. Final Analysis Inc. of Maryland implemented the finished design in a satellite launched in Russia in September. Although not all testing is completed, Dr. Georghiades reports good news. Communication has been established and signals are being received from the modem!

## EE Students Recognized

Five electrical engineering majors were among some 35 May graduates recognized for their participation in Texas A&M's Engineering Scholars Program (ESP). Preston Galle, Michael Saville, Roy Smeal, Carrie L. Kovarik, and Dorothy Golden received framed certificates during a ceremony held at the Zachry Engineering Center.

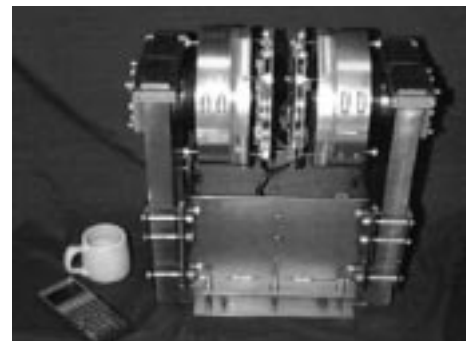
Dr. G. P. "Bud" Peterson, executive associate dean of engineering, praised the students for their commitment to educational excellence.

The program seeks to attract the best students to Texas A&M, promote future leadership, and put students in contact with industry leaders. ESP members must maintain a minimum 3.4 grade-point average, take honors level courses, attend ESP seminars, and conduct research.

## Work in Biomedical Area Cited

An October 1997 IEEE *Spectrum* article highlights work by electrical engineering professor Dr. Steven Wright and his students in biomedical imaging to develop tabletop magnetic resonance imagers (MRI). The researchers have used a 0.22 Tesla permanent magnet developed by Dr. Russ Huson of the Texas A&M University Department of Physics to obtain MR images in 1 minute having 150-by-150 micron in-plane resolution. The magnet, which has a 10 cm spacing between the pole pieces, was constructed in the Magnetic Resonance Systems Laboratory using less than \$2,500 in magnet material.

The group was recently funded by the Texas Higher Education Coordinating Board to continue development of desktop MRI systems. The lower-cost desktop systems could create a myriad of uses for the machines—from monitoring fruit and other produce to giving diagnostic assistance in doctors' offices and clinics.



*Desktop-sized 0.22 Tesla permanent magnet constructed for low-field microscopy applications.*

The creation of smaller systems to image arms and legs, even heads, could find specialists in orthopedics and neurology investing in MRI technology. Society could benefit from less expensive MRI scans for treatment of injury, diagnosis of disease, and screens for breast and prostate cancers—all made more agreeable to patients because of MRI's less invasive nature and the absence of radiation.

**Related Website**  
<http://mrsl.tamu.edu/~bmi/>

## New EPPEI Membership Concept Unveiled

A new concept promises to revolutionize the way industry and vendors look at the Electric Power and Power Electronics program at Texas A&M University.

The concept energized members of the Electric Power & Power Electronics Institute (EPPEI) Advisory Board attending the annual meeting held Oct. 21 in the Zachry Engineering Center. Electrical engineering department head Dr. Chanan Singh and Dr. G. P. "Bud" Peterson, executive associate dean of the Dwight Look College of Engineering, greeted members and discussed their respective areas.



*Dr. Prasad Enjeti apprised members of the advanced test capabilities of the Electric Power Quality Lab.*



*Dr. Ali Abur demonstrates computer simulation and system models installed on the lab workstations.*

Dr. Mladen Kezunovic, professor and director of EPPEI, unveiled the three-tiered membership plan that will allow industry, vendors, and academia to partner in advancing research in power systems and power electronics.

After a relaxing lunch, the group discussed possible projects available for funding and potential impact of the research on the future of electric utilities and related fields.

Lab tours solicited more comments about the potential of the new activities and role of the EPPEI. In her tour Dr. Karen Butler explained the role that Power Systems Automation Lab serves in developing advanced protection, monitoring, and control systems.

### Companies and Attending Representatives

*Central & South West Services, Inc.*  
Michelle Kalnas

*Elsag Bailey Process Automation*  
Mani Subramanian

*Entergy Services, Inc.*  
John Schilleci

*Houston Lighting & Power Co.*  
John Houston and C. W. Fromen

*TU Electric*  
Bill Muston and Sherry Goiffon



*Advisory Board participants and faculty visit before the meeting.*

### Related Website

<http://ee.tamu.edu/~eppe/>

from Texas A&M University and the University of Texas at Arlington, as well as from the University of North Texas at Denton and representatives from various member/nonmember industry and governmental organizations in attending the two-day meeting. Facility tours on Monday afternoon showcased the Microwave & Antenna Lab, the Magnetic Resonance Systems Lab, the Electro-Optics Lab and the Solid State Electronics Lab. Dr. James Biard, Chief Scientist, Honeywell Microswitch, Richardson, Texas, and faculty member of electrical engineering at Texas A&M, spoke at the night's dinner.

The crowd received a copy of the recently updated Center brochure, a brighter and more informative publication of the Center's research, technology, and experience offerings.

### Related Website

<http://ee.tamu.edu/cemdas/>

## BRIEFS...

### Computer Engineering

*\* Using half the funds received in a 1996 \$227,000 three-year grant from the National Science Foundation, the Computer Engineering Group has acquired two new electronic switching systems and two new powerful workstation/servers for research in communications and parallel computing.*

*\* Compaq Computers in Bryan has hired several dozen electrical engineering and computer engineering students on a co-op or a part-time basis. Dr. Ray Mercer, liaison between Compaq and the Dwight Look College of Engineering, reports that relations are extremely positive.*

## Meeting Convenes for Update on NSF/CEMDAS

The 4th semiannual meeting of the Center for Electronic Materials, Devices and Systems, a National Science Foundation (NSF CEMDAS) University/Industry Cooperative Research Center was held in College Station Nov. 10-11.

Attendees heard reports and presentations on the progress of current projects sponsored and funded by the educational and industrial participants. The meeting provided an opportunity for the Industrial Advisory Board to meet and discuss research concerns. The meeting introduced CEMDAS to prospective industrial sponsors and affiliates whose memberships and interaction are important to the Center's continued growth.

Drs. Henry Taylor, director; Kai Chang and Mark Weichold, associate directors; and Lynette Huval, administrative assistant, joined invited guests

## Reception Honors Gibson

Dr. Jerry Gibson, professor of electrical engineering, accepted a plaque of recognition for his contribution to the department at a farewell reception July 31 at the Faculty Club in Rudder Tower.



Dr. Gibson has accepted the position of chair of the Department of Electrical Engineering at Southern Methodist University. An elected fellow of the IEEE since 1992 and holder of the J. W. Runyon, Jr. Professorship since September 1987, he joined the department in 1967 as an assistant professor.

In 1990 Dr. Gibson received the American Society of Engineering Education's Frederick Emmons Terman Award and the IEEE Signal Processing Society Senior Paper Award in 1993. Dr. Gibson served as president of the IEEE Information Theory Society in 1996.

Always active in on-campus Texas A&M University activities, he was lead professor on the department's digital signal processing master's level educational program supported by Texas Instruments.

## Howze Chairs Undergraduate Studies Committee

In December EE professor Dr. Jo Howze was chosen to steer the Undergraduate Studies Committee. The committee's purpose is to address the repercussions that the current explosion of information coupled with a trend toward fewer degree hours has on the educational process. Addressing this problem now assures that EE graduates are more prepared to go into the marketplace after completing degree requirements.

Dr. Howze plans to poll students and industry representatives for feedback on department effectiveness.

## Lab Project to Aid Breast Cancer Detection

The Computer Assisted Medical Diagnostic Imaging (CAMDI) Laboratory in the Zachry Engineering Center at Texas A&M University plans to play a cutting-edge role in breast cancer detection. The laboratory's initial project is to research earlier diagnosis of breast cancer using morphological texture classification in digitized mammography to allow for earlier detection of cancerous tumors.

The CAMDI lab, formed in spring of 1997, is jointly sponsored by the Texas Center for Applied Technology (TCAT) and the Department of Electrical Engineering. Professors of electrical engineering Drs. Ed Dougherty and Nasser Kehtarnavaz act as director and associate director. Other personnel involved are EE professor Dr. Norman Griswold; EE adjunct professor and U. S. Army colonel Dr. Anna Chacko; Brook Army Medical Center's (BAMC) director of mammography Dr. Rashmikant B. Shah; and full-time researchers Drs. Krishnamoorthy Sivakumar, Sinan Batman, Vishnu Kamat, and Antony Popov.

In addition, Alan Love, director of health care engineering programs, acts as coordinator between the Texas Engineering Experiment Station, TCAT, BAMC, and the center's industry affiliates—Applied Intelligent Systems Inc. and Sun Microsystems. The role of BAMC is to provide a large library of digitized mammograms from which to build a database of reference knowledge for the computer program.

"The purpose of CAMDI is to bring together an outstanding team of imaging researchers who can apply random image modeling and nonlinear algorithms to attack the type of statistically difficult problems that occur in medical image analysis," says Dr. Dougherty. The researchers' long-range goal is to integrate this computer assisted medical diagnostic imaging program into a wireless telemedicine/ teleradiology application.



## Taylor Named CEMDAS Director

Dr. Henry Taylor was named director of the Center for Electronic Materials, Devices, and

Systems, a National Science Foundation (NSF CEMDAS) University/Industry Cooperative Research Center.

At Texas A&M University since 1967, Dr. Taylor's interest areas include fiber optics, optical sensors, and integrated optics. He is a fellow of the Institute of Electrical and Electronics Engineers (IEEE) and has received the Texas A&M Association of Former Students Award For Excellence in Research.

Dr. Taylor has been associate editor for the IEEE *Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* since 1992. He received his B.S., M.S., and Ph.D. from Rice University.



## New Runyon Chairperson Named

Professor of electrical engineering Dr. Costas N. Georghiades has been awarded the

J.W. Runyon Jr. Professorship at Texas A&M University, a position established by the late John W. Runyon Jr., noted Dallas businessman and art collector.

A faculty member since 1985, Dr. Georghiades is co-leader of the university's VLSI-Telecommunications Research Center. 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, and synchronization systems.

Dr. Georghiades was recently named a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), joining an elite group of electrical engineers.

## Current Technology Commits to Power Quality Fellowships

Current Technology of Irving, Texas, has committed to funding two \$10,000 Power Quality Fellowships in the Department of Electrical Engineering at Texas A&M University. Selected students will be awarded the scholarships, one in 1998 and one in 1999. The Current Technology fellowships further research and development of electrical power quality issues and products and support Texas A&M's Power Quality Laboratory in its educational and outreach endeavors. The first Current Technology fellowship was awarded to Jose Rangel in 1996.

## Funds Received for Raytheon TI Systems Master's Fellowship

In October Raytheon TI Systems funded a \$30,000 master's fellowship program for research in the area of microwave engineering at Texas A&M University. The program, administered by the Department of Electrical Engineering, will begin by fall 1998.

The funds will provide a monthly stipend, as well as funds for books and thesis preparation, to a full-time graduate student chosen for commitment to the electrical engineering profession, academic excellence, and research ability in the microwave engineering field.

## Graduate Fellowship and Scholarship Recipients

*Congratulations to the following graduate students, chosen to receive Department of Electrical Engineering Fellowships and Scholarships. These awards, made by the Graduate Studies Committee, were based on the publications, journals, and conference papers listed/submitted by each applicant.*

### Graduate Enhancement \$12,000

*Mike Grimaila  
Khwaja M. Rahman  
Predrag Spasojevic  
Minsheng Wang*

### Department of Education Fellowships

**3 years - \$14,000**

*James Bankson  
Timothy McKinney*

### Department Competitive Scholarships

*Hoki Kim  
Choi Mu Li  
Junhua Duan*

### Office of Graduate Studies Graduate Merit Fellowships

*Matthew Coutant  
Marcus Grande*

### Competitive Scholarships

*James Bankson  
Ming-Tzu Ho  
Ojin Kwon  
Bang Sup Lee  
Fernando H. Magnago  
Jeffrey Miller  
Alex Reyes  
Jennifer Spadea  
James Tandy  
Tong Zhu  
Lei Zheng*

## ENDOWMENTS

### Reflections for the Future

A department reflects its faculty and students. Endowed scholarships and fellowships help in attracting and educating top quality students. Endowed professorships and chairs assist in attracting, rewarding, and retaining top quality faculty.

Endowments and gifts are investments—not only in the future of higher education, but also in the betterment of society. These endowments contribute toward a stable environment for enhancing the quality of education and scholarly work.

We would be delighted to discuss further with you how endowments help enhance the quality of the department and how to establish or contribute towards 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.

For more information, please contact one of the following:

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College Station, TX 77843-3128  
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Mark Klemm, Director of Development  
Dwight Look College of Engineering  
Texas A&M University  
College Station, TX 77843-3126  
Phone 409-862-4843

# Electrical Engineering 1997 - 1998 Undergraduate Scholarship Recipients



## Raymond Van Hook Memorial Scholarship

<i>Erin Bench</i>	<i>Senior</i>
<i>Kais Elodat</i>	<i>Junior</i>
<i>John Sedlak</i>	<i>Sophomore</i>
<i>John P. Crank</i>	<i>Senior</i>
<i>Jessie J. Dickens</i>	<i>Senior</i>
<i>Hailan Liu</i>	<i>Senior</i>
<i>Stephen Geiger</i>	<i>Freshman</i>
<i>James Wingfield</i>	<i>Sophomore</i>
<i>Stacey Coiner</i>	<i>Freshman</i>

## Marvin Wadsworth Smith Scholarship

<i>Clark Jarvis</i>	<i>Sophomore</i>
<i>Ryan Schnacke</i>	<i>Senior</i>
<i>Dung Huu Nguyen</i>	<i>Senior</i>
<i>Jeff Bergeron</i>	<i>Junior</i>
<i>Wesley Weibel</i>	<i>Sophomore</i>

## Willard P. Worley '43 Scholarship

<i>Christine Worstell</i>	<i>Junior</i>
<i>Michael Fisher</i>	<i>Junior</i>

## Fred D. Lege III Endowed Scholarship

<i>Patsy Noah</i>	<i>Senior</i>
<i>Bryan A. Ramirez</i>	<i>Junior</i>

## Ben B. Thigpen Endowed Scholarship

<i>Matthew Hawkes</i>	<i>Senior</i>
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## John C. Bibbs Endowed Scholarship

<i>Stacy Oellrich</i>	<i>Senior</i>
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## Robert D. Chenoweth '47 Endowed Scholarship

<i>Bradley C. Johnson</i>	<i>Senior</i>
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## Lewis M. Haupt '27 Scholarship

<i>Ross Ciomperlik</i>	<i>Senior</i>
<i>Scott M. Olschewsky</i>	<i>Junior</i>

## Central Power and Light Scholarship

<i>Kristopher Arnold</i>	<i>Senior</i>
<i>James Skoruppa</i>	<i>Junior</i>
<i>Kevin Gabrielli</i>	<i>Freshman</i>

## Schlumberger Foundation Scholarship

<i>Joseph Pautler</i>	<i>Senior</i>
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## Southwest Electrical Metering Association Scholarship

<i>Kristopher Fuller</i>	<i>Senior</i>
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## Chevron Scholarship

<i>Sean Sundberg</i>	<i>Senior</i>
<i>Jason Jung</i>	<i>Senior</i>

## Kevin D. Faske Scholarship

<i>David Deptula</i>	<i>Senior</i>
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## Bolton Scholars Account Kennedy Scholarship

<i>Ronald Liu</i>	<i>Senior</i>
<i>Matthew Parker</i>	<i>Senior</i>

## William Shula Scholarship

<i>Allen Andrews</i>	<i>Senior</i>
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## Texaco Scholarship

<i>Jeffrey L. Watts</i>	<i>Senior</i>
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## Alcoa Scholarship

<i>William Hefflefinger</i>	<i>Senior</i>
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## Trident Data Systems Scholarship

<i>Christopher Jones</i>	<i>Junior</i>
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## Private Scholarships/Misc. Funds

<i>Dung Thien Huynh</i>	<i>Senior</i>
<i>Safwan Zaheer</i>	<i>Senior</i>
<i>Jason Wicker</i>	<i>Sophomore</i>
<i>Shahedolla Molla</i>	<i>Senior</i>
<i>Hoang Van Ngo</i>	<i>Senior</i>
<i>Tuan Anh Pham</i>	<i>Senior</i>
<i>William Afendy</i>	<i>Junior</i>
<i>Somit Mathur</i>	<i>Junior</i>
<i>Trang Dinh</i>	<i>Senior</i>

## 1997 ARP/ATP AWARDS

### Department of Electrical Engineering at Texas A&M University

The Advanced Research Program (ARP) and the Advanced Technology Program (ATP) are complementary, state-wide research programs. Both programs were created as peer-review, competitive grants programs

The ARP is devoted to fostering understanding in the field, supporting research designed to attract and retain the best students and researchers. ARP strives in helping to provide

the knowledge base needed for innovation.

The ATP is devoted to technological research with a long-term economic goal of promoting the state's economic growth and diversification by increasing the number and quality of scientists and engineers. ATP's objective is to enlarge the technology base available to business/industry, create new products/services, and attract new industries to Texas.

Principal Investigator Title	Amount	Area
<i>Steven Wright and Don Parker</i> <i>Electrical Characterization of Microelectronics Packaging Using Magnetic Resonance Imaging</i>	\$150,461	ENGINEERING
<i>Steven Wright</i> <i>Low-Cost Laboratory MRI Instruments Using High-Temperature Superconducting Sensors</i>	\$ 95,530	BIOTECHNOLOGY
<i>Prasad Enjeti</i> <i>New Approaches to Develop Clean Power Converters</i>	\$144,936	ENERGY
<i>Ali Abur and Mladen Kezunovic</i> <i>Advanced Tools for Power Quality Assessment</i>	\$166,865	ENERGY
<i>Mehrdad Ehsani and Karen Butler</i> <i>Design Optimization of the Electrically Peaking Hybrid (ELPH) Car</i>	\$133,427	ENERGY
<i>Raghvendra K. Pandey</i> <i>Intelligent Processing of Thermoelectric Materials for Microelectronics, Refrigeration, Energy Conversion</i>	\$ 59,400	MANUFACTURING TECH.
<i>Maciej Styblinski</i> <i>Optimal Top-Down/Bottom-Up Statistical Modeling and Design of High Quality Analog-Mixed-Signal IC's</i>	\$178,071	MICROELECTRONICS
<i>Sherif Embabi</i> <i>Integration of a Digital Subsampling Radio Frequency Receiver</i>	\$147,114	MICROELECTRONICS
<i>M. Ray Mercer</i> <i>Defect-Directed Test Pattern Generation for Manufacture/Testing of Integrated Circuits</i>	\$139,491	MICROELECTRONICS
<i>Henry Taylor and Ohannes Eknayan</i> <i>Electrooptics Technology for Fiber Optics Networks</i>	\$192,951	TELECOMMUNICATIONS
<i>Costas Georghiadis and Mi Lu</i> <i>Design, Simulation and Verification of Routing Algorithms for Reliable, High-Speed Wireless Data Networks</i>	\$142,871	TELECOMMUNICATIONS
<i>Kai Chang</i> <i>Microwave Sensor for Automatic Oil Drill String Identification System</i>	\$156,216 \$703,000 <i>Savage Koomey McDaniel, Inc.;</i> \$320,000 <i>Omni-Patch Designs, Inc.</i>	ENERGY
<i>Mark Weichold</i> <i>Commercialization of Monolithic Field Emission Flat Panel Displays</i>	\$197,876 \$100,000 <i>KYPWEE Display Corp.</i>	MICROELECTRONICS

## IN MEMORIAM



**Maciej Styblinski**

Maciej Styblinski left this earthly abode on the early morning of Nov 16. Maciej was a dedicated educator, brilliant researcher but above all a great human being. His contributions had a far-reaching impact

on the advancement of statistical circuit design, especially related to integrated circuit design. His scholarly work will be remembered and cited for many years to come, and he was elected Fellow of IEEE for his contributions. Maciej always worked towards perfection, finding solutions for difficult problems.

I could go on citing his contributions to the profession and the EE department but, despite all his achievements, Maciej was a humble man. I would say that he was a great man. He was always interested in the welfare of his students, colleagues, and the department. Maciej reminds me of the following conversation of Carlos Castaneda.

*Look at every path closely and deliberately. Try it as many times as you think necessary. Then ask yourself and yourself alone this question. This question is one that only a very old man asks. My benefactor told me about it once when I was young man and my blood was too vigorous for me to understand it. Now I do understand it. I will tell you what it is: Does this path have a heart? If it does, the path is good. If it doesn't, it is of no use.*

I know for sure that Maciej always chose the path of heart.

**Chanan Singh**  
**EE department head**

## Faculty and Staff News

### Recognition

**Dr. James Biard** included on Smithsonian Institute Internet page on Quartz watch as inventor of the Light Emitting Diode (LED)

**Dr. Gwan Choi**  
NSF Career Initiation Award

**Dr. Aniruddha Datta**  
IEEE Senior Member

**Dr. Costas Georgiades J. K.**  
Runyon Endowed Professorship; Associate Editor for IEEE Communication Letters, Who's Who in Science and Engineering; IEEE Fellow

**Dr. G. M. Huang**  
Graduate Coordinator

**Dr. Mladen Kezunovic** Director of Electric Power & Power Electronics Institute; TEES Fellow

**Dr. Mi Lu** Associate Editor of Journal of Computing and Information; Associate Editor of Information Sciences Journal

**Dr. Krzysztof A. Michalski** Guest editor of special issue of Frequency Domain Modeling of Printed Circuits and Antennas, International Journal of Microwave and Millimeter-Wave Computer-Aided Engineering, Sept. 1997.

**Dr. R. D. Nevels** Chairman of IEEE Antennas and Propagation Society and Radiation Committee

**Dr. A. D. Patton** re-appointed to NRC Panel for Assessment of NIST Electronics & Electrical Engineering Laboratory for period 1998-2000

**Dr. Narasimha Reddy**  
NSF Career Initiation Award

**Dr. B. Don Russell** 1997 IEEE Herman Halperin Electric Transmission and Distribution Award

**Dr. Edgar Sánchez-Sinencio**, Darlington Award, 1997; Editor-in-chief, IEEE Transactions on Circuits and Systems II, July 97 - July 99

**Dr. Chanan Singh** awarded Doctor of Science by University of Saskatchewan, Canada; TAMU Association of Former Students Distinguished Achievement Award for Research

**Dr. Karan Watson** American Society of Engineering Educator's Minorities in Engineering Award; The Harriet B. Rigas Award courtesy of Hewlett-Packard and IEEE; the IEEE Board of Directors' Undergraduate Teaching Medal

### 20-Year Pin

**Dr. Andrew Chan**

### Promotions

**Dr. Aniruddha Datta**  
Associate Professor

**Dr. Sherif H. K. Embabi**  
Associate Professor

**Dr. Jose Pineda de Gyvez**  
Associate Professor

**Dr. Long-Ching Wang**  
Associate Professor

**Lisa Lister**, Staff Assistant  
**Carl Benner**, Assoc. Rsch. Engr.

### Hirings

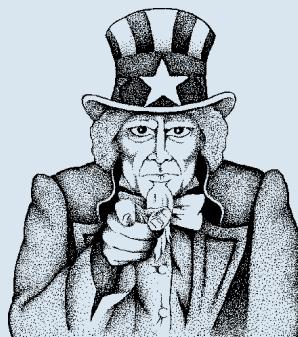
**Phyllis Doughty**, Information Repr.  
**Nancy Reichart**, Staff Assistant, EPPEI

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