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A Message from the Chairman, Yuan F. Zheng

Academics Enhance Finance–

This past academic year was the first year that the University used a new budget model to allocate funds to colleges. According to the new model, funding is based on so-called Net Marginal Resources (NMR) earned in the previous fiscal year by each college, which is equal to resources minus expenses. The model, putting it in a simple way, gives a college more if it makes more, and vice versa. In this message, I am not to discuss the model itself, but to present my view on how an academic unit can become more prosperous under this new model.

In the first place, a unit leader may think that creating new revenue streams should be the top priority in his/her administration. It sounds too much like a business, not an institution, which I do not blame because resources have become so tight at public institutions as most states continuously cut budget for higher education in recent years. Philosophically, however, I believe a Chinese saying: “money cannot do everything, but one can do nothing without it.” That is, resources are extremely important, but cannot do everything for us automatically such as improving the quality of our academic reputation which is often in conflict with the goal of finance. For example, to increase the revenue, a unit may choose to admit more students to increase the Fee and Subsidy revenue. That can only be achieved by lowering the academic standard which is very undesirable. Here I am not offering a universal solution for every academic unit, but reveal a strategy for our Department. I call it academics enhancing finance, not the other way around.

Our top priority should be on quality research funding. By quality, I mean major federal funding such as from the National Science Foundation, National Institute of Health, DARPA, Air Force Office of Scientific Research, Office of Naval Research, and Army Office of Research, etc. Research funding by those federal agencies is highly competitive and brings reputation to The Ohio State University as well as revenue (through Indirect Cost Recovery). An outstanding way to win more quality funding is by my observation by interdisciplinary teams, for which The Ohio State University has a rare advantage in the country and even in the world – it has almost every discipline a person can think of in a university. Lowering the selectivity to increase the enrollment should never be a strategy because that is at the cost of academics. Fortunately, the University as a whole is not taking that approach. As I mentioned in the previous annual report, the average ACT score of our new first quarter freshman has increased by more than 2.5 points in the past ten years. That is significant.

The good news is that our Department is doing well in that direction. The NMR of the Department for the previous academic year is a healthy positive which contributes to one-third of the total NMR of the College of Engineering. A major reason is that our faculty has become more productive in winning quality funding. Research expenditure by federally funded projects increased by 15% during the previous academic year. This included grants by the Air Force Research Laboratory and the Air Force Office of Scientific Research to the Ohio State Collaborative Center of Control Science led by Professor Kevin Passino, and by the National Science Foundation to Professors Benjamin Coifman, Hesham El Gamal, and Philip Schniter for the prestigious CAREER award, to mention just two. More research expenditure increases the indirect cost recovery for the university which is counted as a part of the resources of the NMR model. Consequently, better academics enhance finance in our Department, not the other way around.

Hope you enjoy reading this annual report and share my view as you read.
Robert Fenton Elected to National Academy of Engineering

Dr. Robert E. Fenton, Professor Emeritus in the Department of Electrical and Computer Engineering at the Ohio State University is one of the 77 engineers and 9 foreign associates elected in 2003 to the National Academy of Engineering (NAE). He was honored for pioneering systems research and engineering on the design and operation of automated highway systems. Election to the NAE is one of the highest professional distinctions that can be given to an engineer. The mission of the NAE is “to promote the technological welfare of the nation by marshalling the knowledge and insights of eminent members of the engineering profession.”

Dr. Fenton joined the Ohio State faculty in 1960. Although he officially retired in 1995, he continues to teach. His technical interests have been focused principally on the communication and control aspects of automated highway systems. During his tenure Dr. Fenton performed pioneering research that led to demonstrated high speed maneuvers (to 80 mph) such as automatic steering, automatic lane changing, and automatic car following. These studies formed a basis for more advanced work at Ohio State and elsewhere, and the purpose of such research is to develop cars that can drive themselves. Some of these ideas may provide answers to today’s traffic congestion problems.

Dr. Fenton was previously honored by IEEE and the Vehicular Technology Society with the Avant Garde Award (1982), election as IEEE Fellow (1986), the Stuart F. Meyer Award (1998), and the IEEE 3rd Millennium Medal (2000).

New IEEE Fellows Named

Four professors were elected this year as IEEE Fellows, bringing to 16 the number of current OSU Department of Electrical and Computer Engineering faculty who have been named as Fellows. Since 1963, IEEE has acknowledged those individuals who have contributed to the advancement of engineering science and technology. The honor of Fellow is bestowed on recipients who have had an extraordinary record of accomplishments in any of the IEEE fields of interest. Fewer than 35% of the persons from academics who were nominated were granted Fellow status this year.

This year’s IEEE Fellows from the OSU Department of Electrical and Computer Engineering include Kim Boyer, Kevin Passino, Vadim Utkin and Longya Xu.

Kim Boyer was cited for “contributions to computer vision.” He joined OSU in 1986 after completing his Ph.D. at Purdue University.

Kevin Passino was honored for contributions to “stability and control of discrete event and intelligent systems.” He came to OSU in 1990 from Notre Dame, where he earned his Ph.D. in 1989.

Vadim Utkin was named for his contributions to “the theory of variable structure and sliding mode control.” Dr. Utkin, Ph.D. 1964 from the Institute for Control Science in Moscow, came to OSU in 1994.

Longya Xu, elected for “contributions to the design, analysis, and control of doubly excited brushless reluctance machines,” joined the OSU faculty in 1990 after completing his Ph.D. at the University of Wisconsin.
Dr. Philip Schniter’s (pictured below) award-winning proposal calls for investigation of new algorithms and receiver structures for wireless communication devices. Dr. Schniter will receive $400,000 to investigate new algorithms and receiver structures for wireless communication devices. Today’s communication technology is capable of supporting high data rates when the transmitting and receiving nodes are at fixed locations or low data rates (e.g., voice) when the nodes are mobile. Through his research, Dr. Schniter hopes to simultaneously achieve high data rates and high levels of mobility with inexpensive consumer devices. His work may one day pave the way for a new revolution in broadband mobile wireless.

Dr. Schniter received the B.S. and M.S. degrees in electrical and computer engineering from the University of Illinois at Urbana-Champaign in 1992 and 1993, respectively. In 2000, he received the Ph.D. degree in electrical engineering from Cornell University in Ithaca, New York, and joined OSU in that year.

Dr. Benjamin Coifman’s proposal investigates “Traffic congestion on freeways: using probe vehicle data to understand bottlenecks and mitigate the resulting problems.” Freeway traffic congestion impacts just about everyone either as individual drivers or as purchasers of products moved on trucks. Quickly finding out where a bottleneck is starting will help cut down on the amount of time it takes to get it cleared. In turn, this will reduce accidents, environmental pollution, and lost time. Dr. Coifman has developed software that takes data from in-ground sensors, like those at traffic lights, and uses it to detect traffic delays and congestion more quickly than current methods can. This means that responders can address what is causing congestion much earlier, reducing size and time of the backup. Dr. Coifman received his Ph.D. from the University of California at Berkeley in 1998. Dr. Coifman, who holds a joint appointment in the Departments of Electrical and Computer Engineering and Civil Engineering, has combined sensor technologies from electrical engineering and traffic flow theory from civil engineering to create innovative ways to attack a longtime problem.

Dr. Hesham El Gamal (right) researches wireless communication. We are in the midst of a new wireless revolution, brought on by the adoption of wireless networks for consumer, military, and scientific applications. For example, the consumer potential is clearly evident in the exploding popularity of wireless LANs and soon-to-be-everywhere Bluetooth-protocol devices. Another example is the use of wireless sensor networks for rescue and monitoring applications. Since earlier research in communication system design has focused primarily on the wire-line channel, this revolution presents new and exciting design challenges. In this research, Dr. El Gamal adopts an optimistic view of exploiting the wireless channel nature to enable high quality multi-media data transmission. In particular, his research focuses on the design of systems that use multiple antennas to create parallel communication pipes between the source and destination. The goal is to develop a better understanding of this multi-input-multi-output (MIMO) channel and then to exploit this understanding to build high efficiency wireless systems. Dr. El Gamal’s research lies on the boundary between Electrical Engineering and Applied Mathematics and is expected to contribute to both disciplines.

Professor El Gamal earned his PhD. in 1999 at the University of Maryland. His research interests include communication theory with emphasis on coding for wireless channels, multi-user detection, and graphical models for coding and signal processing.

Dr. Fernando Teixeira (below) is studying and developing new time-domain inverse scattering techniques that exploit fundamental aspects of ultra-wideband (UWB) scattering and propagation in random (disordered) media. UWB remote sensing systems are attractive because they take advantage of operation at both lower frequencies (more penetration into lossy materials) and higher frequencies (larger resolution), and are more immune to both atmospheric and multipath interference effects. The new inverse scattering techniques will utilize time-reversal synthetic back-propagation to achieve super-resolution, time-domain statistical stability, and selective focusing of UWB signals in disordered media. He will also develop new time-domain scattering techniques.
Teixeira, continued from previous page

forward solvers for UWB wave propagation in random media. The resulting forward solvers will allow the simulation of virtual scenes of increasingly realistic remote sensing scenarios and with increased geometric fidelity and numerical accuracy, thus allowing for better synthetic discrimination of UWB weak scattering mechanisms and improved overall efficiency of inverse scattering algorithms.

Professor Teixeira received his Ph.D. in 1999, from the University of Illinois at Urbana-Champaign. His research focuses on computational electromagnetics.

**New Ground Plane For Qualification of CRPA and FRPA**

Dr. Inder (Jiti) Gupta and Prof. W. Dennie Burns have designed and built a new ground plane for the qualification of GPS Controlled Reception Pattern Antennas (CRPA) and Fix Reception Pattern Antennas (FRPA). The ground plane can be used to measure the volumetric radiation patterns of individual antenna elements over all GPS frequency bands (L1, L2 as well as L5). The new ground plane is designed to minimize diffraction arising from the discontinuities in its surface and thus leads to very clean antenna patterns. It is a body of revolution and thus its surface can be defined using a single curve which is obtained by blending a straight line with an ellipse. The parameters of the blended curve are selected such that the resulting surface is planar near the antenna under test and then slowly curves into a blended rolled edge (see Figure above). The GPS Joint Program Office (JPO) has selected this new ground plane for qualification of all CRPA to be purchased under its newly announced ADAP program. This program is designed to buy advanced antennas and antenna electronics (adaptive antennas) for GPS receivers. These adaptive antennas help GPS receivers operate properly in severe RFI environment. The new ground plane, although designed and built for GPS antennas, can be used to measure radiation conformal antennas and one day may become standard for all antenna testing.

**Utkin Wins Oldenburger Medal**

Professor Vadim Utkin has been awarded the 2003 Rufus Oldenburger Medal from the American Society of Mechanical Engineers “for seminal contributions to nonlinear automatic control, in particular, for the pioneering and further development of the theory of sliding mode control, and for the successful application of sliding mode control to metallurgical and petrochemical industries as well as to a wide variety of electrical, mechanical, and electromechanical systems.” The prestigious Oldenburger Medal recognizes significant contributions and outstanding achievements in the field of automatic control. Dr. Utkin received his Ph.D. in 1964 from the Institute for Control Studies, Moscow.

Professor Utkin is also one of the originators of the concepts of Variable Structure Systems and Sliding Mode Control. He has written five books and more than 270 technical papers.

**First Pluto Probe Designed and Tested**

Images and data from NASA’s first Pluto mission, New Horizons, will be transmitted to earth using a deep space probe antenna designed with Ohio State engineering software. Testing of the high gain antenna will be conducted at the Ohio State ElectroScience Laboratory compact antenna range. The sophisticated and reliable tools packaged in Ohio State’s Satellite Code Consortium software supported the design of the antenna for NASA’s New Horizons probe by researchers at the Johns Hopkins Applied Physics Laboratory. The resulting antenna is more efficient and increases the data rate in the radiolink from the probe to earth. Since more information can be received in a given time on the Deep Space Network, NASA’s space communication network, a significant savings in mission cost can be realized.

The Ohio State Satellite Code Consortium Software was created by Walter Burnside, Professor Emeritus of Electrical Engineering, along with research scientists at the ElectroScience Laboratory. Wilhelmus Theunissen and Teh-Hong Lee, both research scientists at the ElectroScience Laboratory, developed the shaping and analysis software used in the design of the Pluto probe antenna. The Satellite Code Consortium codes are the computer programs that aid in the design of satellite antennas. In the past, researchers would use approximations to complex mathematical equations to determine performance for a specific satellite antenna. Even this crude approach could take a long time to verify and optimize with engineering models and tests. With the Ohio State software this can now be completed in just a few days with high accuracy.
Professor Paul R. Berger, team leader of the Ohio Nanoscale Patterning Consortium, was awarded a $2 million grant by the Ohio Board of Regents. The award was made through the 2003 Hayes Investment Fund (HIF) Program which targets support for major equipment purchases and facilities to enhance the research infrastructure of Ohio's universities and to foster collaboration among them. Dr. Berger's award is one of eight awarded this year by the Ohio Board of Regents.

The award will provide for the acquisition of an electron beam lithography (EBL) system capable of directly patterning nanometer-sized patterns onto a variety of samples and photomasks. Also supported by the HIF will be a scanning electron microscope (SEM) for the inspection of the nanoscale patterns and devices. Ohio University will also receive an SEM that will have some limited direct-write patterning capability under this HIF award.

Ohio University will also receive an SEM that will have some limited direct-write patterning capability under this HIF award. As the equipment is installed and becomes operational, the Consortium team is expected to expand as its impact is felt across the State of Ohio and the Midwest region.

Besides providing funds for major equipment, the Hayes Program grants encourage collaboration between researchers at Ohio universities and industry. Current members of Dr. Berger's consortium are The Ohio State University, Ohio University, Wright State University, Lake Shore Cryotronics, Inc., Battelle Memorial Institute, Air Force Research Laboratory, and NASA Glenn Research Center. At Ohio State, consortium members hail from a variety of Departments and Colleges: Electrical and Computer Engineering, Physics, Chemical Engineering and Mechanical Engineering. Within ECE, the Consortium team includes Berger, Wu Lu, Steve Ringel and Leonard Brillson.

This new facility is aimed at nanotechnology and sub-micron efforts, including nanoelectronics, nanophotonics, nanostructured photovoltaics, optoelectronics, photonic integrated circuits, molecular electronics, bio-MEMS (Micro-Electro-Mechanical Systems) and Nano-Electro-Mechanical Systems (NEMS). Although the Ohio State facility is specifically focused towards nanometer-scale studies, the nanometer-scale facility can naturally accommodate micrometer-scale dimensions, greatly widening its appeal as a focal point for interdisciplinary research across Ohio.

The EBL and SEM is a key component of the ongoing expansion of cleanroom fabrication capabilities within the Solid State Electronics and Photonics area and is synergistic with the EE Departments Strategic Plan and anticipated new targeted faculty hiring.

This award will complement the 2002 National Science Foundation award under the Instrumentation for Materials Research program received by Professor Wu Lu and other Consortium members, including Berger, for an inductively-coupled plasma reactive ion etching (ICP-RIE) system. The ICP-RIE is expected to be operational in the winter 2004 quarter and the EBL and SEM, which will require renovation to the existing cleanroom facility, are expected to go on-line in late 2004.

Professor Berger received his Ph.D. from the University of Michigan in 1990, and post-doctoral training at Bell Laboratories. He came to Ohio State in 2000 from the University of Delaware. Currently, Berger holds joint appointments in Electrical and Computer Engineering and Physics and sits as the Director of the Nanoelectronics and Optoelectronics Laboratory (NOEL) which includes the Polymer Device Laboratory (PDL) for the exploration of the nascent field of organic semiconductor materials.

Jennifer Leonard, an Electrical and Computer Engineering graduate student with the Analog VLSI Lab, was recently named one of thirteen SRC Masters Scholars nationwide by the Semiconductor Research Corporation. She was recognized at SRC TECHCON 2003, held in Dallas, TX in August. She is working under the guidance of the lab's founding director, Prof. Mohammed Ismail. The Semiconductor Research Corporation (www.src.org) is a consortium of US semiconductor companies, which provide funding and other resources for cutting-edge research to a select group of universities in the United States.
Electronic Devices and Materials Lab

Modern nanomaterials have applications that range from ultra-light solar cells to medical devices to energy-efficient, high-tech stoplights that use a tiny fraction of the energy required for conventional lighting. Physicists have long thought that a material with a particular atomic structure would have a specific set of properties. However, it is only in the last 20 years or so that lab facilities have become sophisticated enough to allow materials scientists and electrical engineers to actually create these materials and exploit their properties. A grand challenge is to integrate structurally different materials while maintaining the desirable electronic and optical properties of each so that new functionalities may be achieved. It's a challenge eagerly taken on by Dr. Steven Ringel (right) and his 15 students and postdocs in the Electronic Devices and Materials Lab. Using a sophisticated thin film crystal growth technique called Molecular Beam Epitaxy in which an ultra-high vacuum environment similar to that found in space is maintained, they are able to synthesize “designer” electronic materials with atomic-scale precision.

Space solar cells are one application that is an example of their recent successes. Since it costs about $10,000/lb to send material into space, featherweight power sources are in high demand. Dr. Ringel and his team have managed to combine a lightweight silicon-based substrate and an ultra-thin, several micrometers in thickness, high-efficiency compound semiconductor photovoltaic cell based on gallium arsenide to create a composite structure that is by far the highest quality of this type reported to date. Integrating these two electronic materials in particular has been a high priority goal of the semiconductor field for decades, since it combines optical, electronic and mechanical properties such that the whole is far greater than the sum of its parts. In partial recognition of their success, Dr. Ringel's team has been invited to provide several space solar cells based on their innovation for a NASA mission to the International Space Station in early 2004.

The group is also working on more down to earth but no less relevant projects. Among them are developing wide bandgap gallium nitride materials that can be used as UV optical sensors to detect airborne biotoxins, and a different class of materials sensitive to the infrared region of the electromagnetic spectrum that can actually convert photon energy from heat sources into electricity. And the potential applications of these materials are numerous, from stopping the spread of disease to removing smoke from the air.

Control Science Center Researches Control of Uninhabited Vehicles

The Air Force Research Laboratory Air Vehicles Directorate (AFRL/VA) and the Air Force Office of Scientific Research (AFOSR) are funding a Collaborative Center of Control Science at The Ohio State University at a level of $1M/year for six years (2001-2007). In addition to the support from AFRL/VA and AFOSR, the Dayton Area Graduate Studies Institute (DAGSI) is supporting graduate student researchers in a cost-sharing relationship at several Ohio institutions. Moreover, the NASA Glenn Research Center is involved in some of the research, and DARPA is supporting closely related projects.

Researchers in the CCCS are conducting collaborative research with the AFRL/VA Control Science Center of Excellence (CSCOE) to develop innovative and practical solutions to challenging control science and technology problems of highest interest to the United States Air Force. The technical focus is on basic and applied research on cooperative control of groups of uninhabited air vehicles (UAVs) and clusters of satellites, aerodynamic flow control, and control of reusable hypersonic launch vehicles. Our innovations in these critical areas are amplified via development of similar technologies and methodologies for related USAF and DoD problems under other funded programs.

This Center is located at The Ohio State University, and has researchers at OSU from the Departments of Electrical Engineering, Mechanical Engineering, Aeronautical Engineering, and Computer and Information Science. It also has researchers from University of Cincinnati, University of Dayton, and the Air Force Institute of Technology. The Ohio State University Team Members include from EE, Professors Jose B. Cruz, Hitay Özbay, Ümit Özgüner, Kevin M. Passino (PI and Center Director), Andrea Serrani, Vadim Utkin, and Stephen Yurkovich. Other OSU members are Professors Mohammed Samimy (MechEng), Bruce Weide (CompSci), and Rama K. Yedavalli (AeroEng).

The CCCS Annual Review is open to the public (in 2002 and 2003 with about 100 attendees each year) and a number of other DoD agencies and companies attend to learn the latest results and explore potential collaborations. We have experimental programs in cooperative control for autonomous vehicles (Prof. Özgüner’s lab) and active flow control (Prof. Samimy’s lab) and these are keeping the research directed toward practical applications and stimulating the development of new theory.
ElectroScience Center Growing

This has been a year of significant growth for the ElectroScience Laboratory (ESL). We continue to build on existing strengths with an eye toward multidisciplinary research activities, as well as initiate new areas of research. This year, students won best paper awards and our faculty and researchers have been awarded new research projects on miniature antennas, radar systems, RF photonics, RF integrated circuits and mixed signals, metamaterials, bio-sensors, wireless propagation models, new compact range systems, fast algorithms for arrays on realistic platforms, electromagnetic interference and compatibility for automotive and military vehicles, multiphysics engineering and medical imaging.

Among many examples of cutting edge research, Prof. Betty Lise Anderson with Prof. Rojas are developing the WhiteCell to realize the ultimate dream of an ultra wideband phased array antennas. Prof. Joel Johnson with Dr. Grant Hampson and Dr. Willie Theunissen are developing a new radiometric system expected to make revolutionary changes in our future microwave radiometer systems for Earth Observation; Prof. Jin-Fa Lee is developing algorithms that could lead to revolutionary speed-ups (by a factor of 100 to 1000) in our computational capabilities; Prof. Volakis with Dr. Chi-Chih Chen, Dr. Gullu Kiziltas and Dr. Sertel are developing new antennas that are 5-10 times smaller and new materials (metamaterials) that exhibit new and yet to be harnessed properties for RF applications; Dr. Chi-Chih Chen is working on the detection/classification of buried unexploded ordnance; and Prof. Burnside with Dr. Paynter, Dr. Chi-Chih Chen, Dr. Willie Theunissen and Dr. Grant Hampson are developing a new generation compact radar system to operate from 400 MHz up to 100 GHz. Prof. Leon Peters introduced successful generalizations of the ramp target response for dielectric scatterers to identify plastic mines, and Prof. Robert Lee (in conjunction with the College of Medicine) is developing resonators for biomedical imaging applications. Further, Prof. Teixeira is working on efficient time-domain algorithms for the simulations of electromagnetic wave propagation and scattering. Also, Dr. Gupta with Prof. Burnside have designed and built a new ground plane for qualification of GPS Controlled Reception Pattern Antennas (CRPA) and Fixed Reception Pattern Antennas (FRPA), and Dr. Burkholler in collaboration with Dr. Ellingson, Dr. Marhefka, Dr. Theunissen and Dr. Gupta are carrying out indoor propagation studies for wireless networking in passenger aircraft; Dr. Paynter is also developing popular graphical user interface, referred to as the Antenna Workbench for electromagnetic simulation tools. More recently he collaborated with Prof. Newman to develop a graphical interface for his popular ESP moment method code.

Northrop Grumman donated APN-241 Aircraft Weather Radar: Northrop Grumman completed its donation of an APN-241 Color Weather Radar system worth over $700,000 during a presentation at the ESL by Jim Armitage, Vice President of Engineering at Northrop Grumman's Electronic Systems division. The APN-241 is currently standard-issue equipment on all C-130 cargo planes, providing capability for detecting weather at a range of 300 miles, air traffic at up to 50 miles, and wakeshear and microburst phenomenon up to 30 miles away. OSU's electrical engineering students will receive hands-on radar experience as it is incorporated into ESL courses and made available for student independent study projects in the coming months. Dr. Michael Carr who joined ESL on January 1st is leading an effort to develop laboratory examples and to carry out studies in collaboration with Aerospace faculty.

Compact Range Improvements: This year, the ESL range design team re-activated the Pulsed-CW radar to research and develop a state-of-the-art instrumentation radar that operates from 400 MHz to 100 GHz. In conjunction with this effort, ESL is working with MIT-Lincoln laboratory (Bedford, MA) to develop a new generation of compact range radars. The compact range sensitivity has also been increased by orders of magnitude by designing improvements of commercially available absorber panels. The modifications were based on analytical design simulations and the implemented improvements allowed for significant sidewall scattering reductions making our state-of-the-art compact range an even better measurement facility.

Our research this year has grown significantly both in dollar amount and in the number of projects and areas of research. Our research covers the entire gamut of electromagnetics, including antennas, remote sensing, ground penetrating radars and imaging, propagation for wireless communications, automotive electromagnetics, compact range and radar technologies, computational electromagnetics (large scale integral methods, finite element techniques, time domain methods), EMI/EMC coupling and interference, true time optical delay for ultra wideband phased arrays, microwave systems and RFICs, RF sensors and new RF materials (metamaterials) for a variety of electromagnetic applications. At the end of 2003, nearly 65 projects were active at ESL.
STANLEY AHALT, Professor, Ph.D. 1986, Clemson University. Neural networks, image processing, data compression, real-time computation, clustering.

PETER CHEN, Professor, Ph.D. 1991, North Carolina State University. Microelectronic devices and circuits, CMOS, VLSI design, signal processing, neural networks, image processing.

BETTY LEE ANDERSON, Associate Professor, Ph.D. 1990, University of Vermont. Optical engineering, fiber optics, lasers, optical communication, optical signal processing, optoelectronic devices, photonics.

PAUL BERGER, Professor, Ph.D. 1990, University of Michigan. Nanoelectronic devices, Si-based tunneling junctions, optoelectronic devices and integrated circuits, polymer-based photonics and electronics, and semiconductor materials, fabrication and growth.

KIM BOYER, Professor, Ph.D. 1986, Purdue University. Computer vision, including perceptual organization, surface estimation, model-based organization, object recognition and target detection and tracking, medical image analysis, spatial data registration.

LEONARD BRILLSON, Professor, Ph.D. 1972, University of Pennsylvania. Electronic materials, semiconductor heterojunction and metal contacts, nanoelectronics, optoelectronics, surface science, defects in crystalline semiconductors, materials characterization and processing.

STEVEN BURK, Associate Professor, Ph.D. 1983, Case Western University. Electronics, communication systems, parallel computation for signal processing, solid-state device theory, and measurements.

KIMBOYER, Professor, Ph.D. 1986, Purdue University. Computer vision, including perceptual organization, surface estimation, model-based organization, object recognition and target detection and tracking, medical image analysis, spatial data registration.

WALTER BURNHAM, Professor Emeritus, Ph.D. 1972, The Ohio State University. Antennas, scattering, measurement systems, measurement techniques.

BRADLEY CLYMER, Associate Professor, Ph.D. 1987, Stanford University. Capture and processing of medical images, MRI, mammography, ultrasound; signal processing of EEG, EKG; adaptive filtering; Fourier transform applications.

JUZER CRUZ, Jr., Professor, Ph.D. 1959, University of Illinois at Urbana-Champaign. Game theoretic control and estimation, hierarchical multi-agent strategies in hostile environments, bidding strategies in energy markets, multiple training in associative memories, feedback theory.
JOANNE D'ElIA, Associate Professor, Ph.D. 1990, University of Illinois at Urbana-Champaign. VLSI computer architecture, computer-aided design, formal verification, hardware description languages, high performance functional units.

ROBERT E. GARBACZ, Professor Emeritus, Ph.D. 1968, The Ohio State University. Electromagnetic theory, radar scattering.

Mohammed ISMAIL, Professor, Ph.D. 1983, University of Manitoba, Canada. Analog, RF, and mixed signal integrated circuits for System-on-Chip, low voltage/power VLSI, circuits for wireless communications and multimedia applications.

JOEL JOHNSON, Associate Professor, Ph.D. 1996, Massachusetts Institute of Technology. Microwave sensing, rough surface scattering, random medium theory, numerical methods for electromagnetics.

Ali Keyhani, Professor, Ph.D. 1975, Purdue University. Mechatronic systems, electric machines, embedded systems, fuel cells, power electronics, electric propulsion systems, leader-follower control, and bidding strategies in electric power markets.

FURRUKH KHAN, Associate Professor, Ph.D. 1983, State University of New York at Stony Brook. Quantum molecular dynamics, parallel computation, semiconductor dynamics and surfaces, semiconductor electronic structures.

HESHAM EL-GAMAL, Assistant Professor, Ph.D. 1999, University of Maryland. Communication theory with emphasis on coding for wireless channels, multi-user detection, and graphical models for coding and signal processing.

HOOSHANG HEMAMI, Professor, Ph.D. 1966, The Ohio State University. Movement control in humans, robots and marionettes, neuromusculoskeletal dynamics, support and contact, rhythmic movement, neural oscillators.

JOGIKAL JAGADEESH, Associate Professor, Ph.D. 1970, The Ohio State University. Multiprocessor architectures and algorithms, pyramid architectures, multiresolution analysis, wavelet transforms for image analysis, 3-D reconstruction and neuronal networks of the retina.

Donald KASTEN, Associate Professor, Ph.D. 1976, University of Missouri-Columbia. Power systems, energy conversion.

Robert Fenton, Professor Emeritus, Ph.D. 1965, The Ohio State University. Feedback control systems, automated highway systems.

Eylem Erci, Assistant Professor, Ph.D. 2002, Georgia Institute of Technology. Computer networks, wireless and satellite systems, routing protocols, and QoS provisioning.

Joonanne DeGroat, Associate Professor, Ph.D. 1990, University of Illinois at Urbana-Champaign. VLSI computer architecture, computer-aided design, formal verification, hardware description languages, high performance functional units.
CHARLES KLEIN, Professor and Associate Chair, Ph.D. 1975, University of Illinois at Urbana-Champaign. Electromagnetics, multiple beam antennas, computer design, data communication.

ASHOK KRISHNAMURTHY, Associate Professor, Ph.D. 1983, University of Florida. Digital signal processing, speech perception and recognition, computational models of the auditory system.

CHANG-GUN LEE, Assistant Professor, Ph.D. 1998, Seoul National University, Korea. Real-time and embedded system architecture, real-time communications, QoS management, mobile communications.


ROBERT LEE, Professor, Ph.D. 1990, University of Arizona. Numerical techniques, finite element/finite difference methods, hybrid methods.

WU LU, Assistant Professor, Ph.D. 1994, Southeast University, China. Nanofabrication and nanoelectronics, III-nitride high power and low noise electronics, high speed III-V compound semiconductor devices and circuits for microwave and optoelectronic applications, High speed SiGe devices for wireless communications.


RANDOLPH MOSES, Professor, Ph.D. 1984, Virginia Polytechnic and State University. Parametric estimation and modeling, spectral estimation, sensor array processing, pattern recognition, automatic target recognition.

EDWARD NEWMAN, Professor, Ph.D. 1973, The Ohio State University. Numerical techniques, scattering, printed circuit antenna analysis.

DAVID OHRN, Professor, Ph.D. 1976, The Ohio State University. Quadruped galloping, walking machines, dynamic maneuvers in legged locomotion, robot dynamic simulation, contact simulation, intelligent robot control, evolutionary robotics.

HITAN ÖZSAM, Professor, Ph.D. 1989, University of Minnesota. Robust control, distributed parameter systems, system identification, application of control theory in computer and communication networks, and aerodynamic flow control.

FUSUN ÖZSÜNDER, Professor, Ph.D. 1975, University of Illinois at Urbana-Champaign. High performance parallel computing, fault tolerance in parallel architectures, communication hardware and algorithms for massively parallel structures, multiprocessor architectures.
ÜMIT ÖZGÜRÜ, Professor, Ph.D. 1975, University of Illinois at Urbana-Champaign. Intelligent control of large, decentralized systems, automotive control, intelligent vehicle highway systems, vibration damping in flexible structures.

RAMNARAIN PATHAK, Professor, Ph.D. 1973, The Ohio State University. Electromagnetic theory, mathematical methods, analysis of practical antenna and scattering problems using asymptotic high-frequency and hybrid computational methods.

RAJEEV RINGEL, Professor, Ph.D. 1991, Georgia Institute of Technology. Electronic materials, optoelectronics, photovoltaics, molecular beam epitaxy, compound semiconductors, nanostructures, defects and interfaces, optoelectronic integrated circuits.

ROBERTO ROJAS, Professor, Ph.D. 1985, The Ohio State University. Active and reconfigurable antenna arrays, high-frequency techniques, electromagnetic scattering and radiation, electromagnetic theory and numerical techniques.

STEPHEN SIEB, Professor Emeritus, Ph.D. 1966, Budapest Technical University and Hungarian Academy of Sciences. Electric power systems, high-voltage engineering, electrical insulation, energy conversion, electromagnetic compatibility, reliability.

OICHE TAKEMITA, Assistant Professor, Ph.D. 1997, University of Tokyo. Error control coding, communication systems, information theory, communication theory.

KAUSHI PABROO, Professor, Ph.D. 1989, University of Notre Dame. Biologically inspired optimization, control, and automation; planning, attention, learning, evolution, swarms, foraging, and games; hierarchical and distributed methods; resource allocation; scheduling; task assignment; cooperative control; stability analysis.

LIE POTTER, Associate Professor, Ph.D. 1990, University of Illinois at Urbana-Champaign. Statistical signal processing, inverse problems, detection and estimation; applications to radar imaging and ultrawideband systems.

PAUL ROBIN, Professor, Ph.D. 1984, Washington University. High-frequency/microwave semiconductor devices, large-signal modeling, nonlinear semiconductor devices, tunneling and scattering in quantum devices.

PHILIP SARNTIT, Assistant Professor, Ph.D. 2000, Cornell. Signal processing for communication systems, adaptive filtering, estimation theory, blind equalization and identification, wireless networks.


FERNANDO TESIXEIRA, Assistant Professor, Ph.D. 1999, University of Illinois at Urbana-Champaign. Computational electromagnetics.
VADIM UTIN, Professor, Ph.D 1964, Institute for Control Sciences, Moscow, Russia. Nonlinear control, sliding mode control, infinite dimensional systems, control of electric motors, vehicles, robots.

GEORGE VALCO, Associate Professor, Ph.D. 1986, University of Cincinnati. Semiconductor devices, high-temperature superconductors, ohmic contacts, photovoltaics, fiber optic arrays, pulsed laser deposition, and microelectronics.

JOHN L. VOLKMER, Roy & Lois Chope Chair Professor and Director of ESL, Ph.D. 1982, The Ohio State University. Development and application of computational methods in electromagnetics and acoustics, computational and analytical electromagnetics, radar signature prediction at low and high frequency, FSS design and microstrip antenna array analysis and design.

STEPHEN YURKOVICH, Professor, Ph.D. 1984, University of Notre Dame. System identification and modeling for control, automotive control systems, self-tuning control, application of control technology.

VADIM UTIN, Professor, Ph.D 1964, Institute for Control Sciences, Moscow, Russia. Nonlinear control, sliding mode control, infinite dimensional systems, control of electric motors, vehicles, robots.

GEORGE VALCO, Associate Professor, Ph.D. 1986, University of Cincinnati. Semiconductor devices, high-temperature superconductors, ohmic contacts, photovoltaics, fiber optic arrays, pulsed laser deposition, and microelectronics.

JOHN L. VOLKMER, Roy & Lois Chope Chair Professor and Director of ESL, Ph.D. 1982, The Ohio State University. Development and application of computational methods in electromagnetics and acoustics, computational and analytical electromagnetics, radar signature prediction at low and high frequency, FSS design and microstrip antenna array analysis and design.

STEPHEN YURKOVICH, Professor, Ph.D. 1984, University of Notre Dame. System identification and modeling for control, automotive control systems, self-tuning control, application of control technology.

LONGYA XU, Professor, Ph.D. 1990, University of Wisconsin. Power electronic converters, control of variable speed drives, finite element analysis, solid state control of electric power systems.

YUAN ZHENG, Professor and Chairman, Ph.D. 1984, The Ohio State University. Robotic manipulators, multimedia compression and communications.

ROBERT J. BURKOLDER, Research Scientist, Ph.D. 1989, The Ohio State University. Electromagnetic theory and computer modeling for antenna design, radar cross section prediction, scattering, and wireless propagation; remote sensing, numerical methods; RF signal processing.

MICHAEL CARR, Senior Research Associate, Ph.D. 2003, University of Michigan. Computational electromagnetics, fast methods, preconditioning, hybrid methods, parallelization, material modeling, active radar remote sensing, detection of weather phenomena, digital communication for aviation.

CHI-CHEH CHEN, Senior Research Associate, Ph.D. 1997, The Ohio State University. Electromagnetic theory, radar signal processing, mathematical modeling of radar target scattering, subsurface target recognition, GPR antenna development, ground penetrating radar applications, detection, identification and deactivation of landmines, low frequency target recognition.

STEPHEN H. GOSS, Senior Research Scientist, Ph.D. 1996, Penn-Jersey State University. Chemical and structural characterization of devices and device material, analytical tool development, MBE growth and processing of nitride/oxide materials, Optical characterization of devices and materials.

INDER J. GUPTA, Senior Research Scientist and Adjunct Professor, Ph.D. 1982, The Ohio State University. Adaptive antenna arrays, anti-jam techniques, multipath mitigation, scattering and radiation measurements, antenna/radar test ranges, radar imaging, feature extraction, direction and time of arrival estimation, and applied signal processing.
Keith A. Redmill, Senior Research Associate, Ph.D., 1998, The Ohio State University. Control and systems theory, intelligent transportation systems, autonomous vehicle and robotic systems, real-time embedded systems, GPS and inertial positioning and navigation, transit and traffic monitoring, image processing, wireless digital communications, decentralized, multiagent, hierarchical and hybrid systems, sensor technologies, numerical analysis and scientific computing, cognitive science.


Ronald Marhefka, Senior Research Scientist, Ph.D., 1976. The Ohio State University. Electromagnetic radiation, scattering and coupling analysis.

Wilhelmus Theunissen, Senior Research Associate, Ph.D., 1999, University of Pretoria, South Africa. Antenna analysis, design and measurement techniques.

Teh-Hong Lee, Research Scientist, Ph.D., 1987, The Ohio State University. Antenna analysis and design, antenna and scattering measurements, compact range design and evaluation.

G. Frank Paynter, Senior Research Associate, Ph.D., 2000, The Ohio State University.
Books


Book Chapters


Journal Articles

Biomedical Engineering


Communications and Signal Processing


Computer Engineering


Control Systems


Control Systems, cont.


Power Systems


Electromagnetics and Optics


Robotics


Microelectronics and Photonics


VSLI Circuits Design


Biomedical Engineering


conference presentations


Control Systems


Control Systems, cont.


Power Systems


“Typical cases of electric field and voltage distribution calculations along polymer insulators under various wet surface conditions,” W. Que and S. A. Sebo, Proceedings of the 2002 IEEE Conference on Electrical Insulation and Dielectric Phenomena, pp. 840-843, Cancun, Mexico, October 2002.


Intelligent Transportation


Electromagnetics and Optics


Microelectronics and Photonics


“Low energy electron-excited nanoscale luminescence characterization of proton irradiated AlGaN/GaN field effect transistor structures,” American Physical Society Ohio Section Fall Meeting, Columbus, Ohio, October 2002.


“Impact of growth conditions on traps in MBE and MOVCD GaN,” S. A. Ringel, Center for Advanced Nitride Electronics (CANE) review meeting, Santa Barbara, California, 2002. (Invited)


conference presentations


“Surface photovoltage spectroscopy and transients of single crystal ZnO(0001),” T. Barrus, L. J. Brillson, D. C. Look, and N. Garces, American Physical Society Ohio Section Fall Meeting, Columbus, Ohio. October 2002.


VLSI Circuits Design


Stanley Ahalt
Technical Committee, High Performance Embedded Computing Conference
Program Committee, Applications of Science of Computational Intelligence V. SPIE Aerosense Conference
Technical Committee, Learning 02
Scientific Committee, High Performance Embedded Computing (HPEC)

Brian Baertlin
Steering Committee, IEEE Antennas and Propagation Society 2003 Annual Symposium

Steven Bibyk
Associate Editor, Analog Integrated Circuits and Signal Processing Journal
Associate Editor, Journal of Circuits, Systems, and Computers

Kim Boyer
Technical Committee, IEEE-PAMI
Program Co-Chair, 16th International Conference on Pattern Recognition
Organizing Committee, Workshops Chair, IEEE Conference on Computer Vision and Pattern Recognition
U.S. representative to the Governing Board of the International Association for Pattern Recognition
IEEE Technical Activities Board Periodicals Review Committee (TAB-PRC)
Area Editor, Computer Vision and Image Understanding

Leonard Brillson
Associate Editor, Journal of Electronic Materials (IEEE journal)
Program Committee, Electronic Materials Conference
Executive Committee, Electronic Materials Conference
Advisory Board, International Conference on Atomically Controlled Surfaces, Interfaces, and Nanostructures
Senior Editor, Electronic Materials Reviews
Long Range Planning Committee, American Vacuum Society

Robert Burkholder
Associate Editor, IEEE Antennas and Wireless Propagation Letters

Jose Crug Jr.
Associate Editor, Journal of Optimization Theory and Applications
Secretary, Engineering Section, American Association for the Advancement of Science
NAE Committee on Diversity in the Engineering Work Force
NAE Committee on Engineering Education, Task Force on "The Engineer in 2020"
Vice Chair, NAE Peer Committee for Electronics Engineering
Chair, NAE Search Committee for Electronics Engineering Section

Benjamin Coifman
Editorial Board, Transportation Research Parts A and B
Transportation Research Board
Committee on Traffic Flow Theory and Characteristics
Committee on Highway Traffic Monitoring
Freeway Operations Research Subcommittee
ASCE International Technical Committee for 8th International Conference on Applications of Advanced Technologies in Transportation Engineering
Intelligent Transportation Society
Mid America Executive Committee
Mid America Scholarship Subcommittee IEEE EAB Society Education Committee
Chair, IEEE Intelligent Transportation Systems Council Education and Student Activities Subcommittee

Hesham El Gamal
Associate Editor, for Space-Time Coding and Spread Spectrum, IEEE Transactions on Communications
Technical Program Committee, IEEE International Conference on Communications 2002
Technical Program Committee, IEEE Vehicular Technology Conference, 2003
Session Chair, Conference on Information Sciences and Systems (CISS)

Steven Ellingson
IEEE Geoscience & Remote Sensing Society Committee on Frequency Allocations in Remote Sensing (FARS)
Chairman, LOFAR Technical Advisory Committee
OSU Representative, the United States Square Kilometer Array Consortium (USSKA)
Mohammed Ismail  
Associate Editor, IEEE Transactions on Circuits and Systems  
Editor in Chief, Journal of Analog Integrated Circuits and Signal Processing  
Technical Program Committee Chair, 2001 IEEE Norchip Conference  
Technical Program Vice-Chair, Wireless Track, IEEE Midwest Symposium on Circuits and Systems  
Member of the IEEE Technical Committee on Nano/Giga Circuits and Systems Society  
Editor, The Chip, a column in IEEE Circuits and Devices Magazine  
IEEE-USA Committee on Aerospace Technology Policy

Joel Johnson  
URSI Liaison, 2003 International APS/URSI Symposium  
Technical Program Committee, PIERS 2002 Symposium  
Technical Program Committee, PIERS 2003 Symposium  
URSI US Comm B Technical Activities Committee  
Member, Naval Research Laboratory WindSAT science team

Ali Keyhani  
IEEE Power Engineering Society  
Chairman, Electric Machinery Committee  
System Control Committee  
Computer and Analytical Methods Committee  
Direct Current and Permanent Magnet Machinery Committee  
Synchronous Machines Committee  
Induction Machinery Committee  
IEEE Industry Application Society  
Electric Machines Committee  
Industrial Drives Committee

Jin-Fa Lee  
Session Chair, IEEE 6th International Workshop on Finite Element Methods for Microwave Engineering  
Session Organizer, XXVIIth General Assembly of the International Union of Radio Science  
Secretary, IEEE Joint APS/MTT Columbus Chapter  
Editorial Board, CompuMag

Robert Lee  
Publicity Chair, 2003 IEEE AP-S/URSI Meeting  
2002 Workshop on Finite Elements Program Committee

Alex Martinez  
Guest-Editor of special issue on “Face Recognition” in Computer Vision and Image Understanding

Randy Moses  
Chair, Columbus Section of the IEEE Signal Processing Society  
Associate Editor, IEEE Transactions on Signal Processing

David Orin  
IEEE Robotics and Automation Society Fellow Committee  
Vice President for Finance, IEEE Robotics and Automation Society  
Chair, Financial Activities Board, IEEE Robotics and Automation Society  
Conference Board, IEEE Robotics and Automation Society  
Executive Committee, IEEE Robotics and Automation Society  
Long Range Planning Committee, IEEE Robotics and Automation Society  
Finance Chair, 2003 IEEE/RSJ International Conference on Intelligent Robots & Systems
Hitay Ozbay  
Associate Editor, Automatica  
Editorial Board, Applied and Computational Mathematics  
Publications Chair, 2002 IEEE Conference on Decision and Control.

Fusun Ozguner  
OSU representative, Ohio Space Grant Consortium

Umit Ozguner  
Associate Editor: International Journal of Intelligent Mechatronic Design and Production  
Associate Editor: International Journal of Intelligent Control and Systems  
Associate Editor: IEEE ITS Transactions  
Executive Committee, ITS-Ohio  
Technical Committee on Intelligent Control, IEEE Control Society  
Program/Organizing Committee, ITST 2002  
Program/Organizing Committee, IEEE IRSC 2002  
General Chair, IEEE Conference on Decision and Control 2002

Kevin Passino  
IEEE Control Systems Society, Distinguished Lecturer  
Program Committee, 17th IEEE International Symposium on Intelligent Control  
Program Committee, 41st IEEE Conference on Decision and Control

Steven Ringel  
Associate Editor and Editorial Board, Solid State Electronics  
TMS/IEEE Electronic Materials Committee  
Chair IEEE Electron Devices Society Columbus Chapter  
Symposium Organizer and Program Committee Member, 44th TMS Electronic Materials Conference  
Session Chair, 44th Electronic Materials Conference  
Symposium Organizer, Proceedings Editor and Session Chair, Spring Materials Research Society Symposium  
Symposium Organizer and Program Committee Member, IEEE World Conference on Photovoltaic Energy Conversion  
ALAA National Aerospace Power Systems Technical Committee (APS-TC)

Roberto Rojas  
Session Chair, URSI meeting, Boulder Colorado  
Technical Committee Program, International Symposium  
Session Chair, “Conformal Antennas,” International Symposium  
Member of Steering Committee (Chair of Short courses and Workshops) for 2003 IEEE-APS/URSI International Symposium, Columbus, Ohio  
Organizing Special Session “Active Integrated Antennas,” for 2003 IEEE-APS/URSI International Symposium, Columbus, Ohio

Stephen Sebo  
Power Engineering Education Committee, IEEE Power Engineering Society (PES)  
Main Committee  
Vice chair, Awards Committee  
Chair, Fellows Working Group  
University Activities  
Power Systems Instrumentation and Measurements Committee  
High Voltage Testing Techniques Subcommittee, member  
Transmission and Distribution Committee  
Corona and Field Effects Subcommittee  
IEEE Dielectrics and Electrical Insulation Society (DEIS) AdCom  
Board member, IEEE Conference on Electrical Insulation and Dielectric Phenomena Nominations Committee
Fernando Teixeira  
Production Editor, Journal of Electromagnetic Waves and Applications  
Editorial Board, IEEE Transactions on Microwave Theory and Techniques  
Administrative Committee, Progress in Electromagnetics Research Symposium (PIERS) 2002  
Steering Committee, TPC Member, 2003 IEEE AP-S International Symposium and USNC/CNC/URSI National Meeting  
Session co-chairman, 2002 IEEE AP-S International Symposium and USNC/URSI National Meeting  
AdCom member, Progress in Electromagnetics Research Symposium (PIERS 2002)  
Special Session co-organizer and co-chairman, Progress in Electromagnetics Research Symposium (PIERS 2002).

Wilhelmus Theunissen  
Vice Chairman, IEEE Region 2 AP/MTT Society, Ohio Chapter

Vadim Utkin  
Administrative Committee, IEEE Industrial Electronics Society  
Chairman, IEEE Technical Committee on Variable Structure and Sliding Mode Control  
Associate Editor, International Journal of Control

Longya Xu  
Associate Editor, IEEE Transactions on Power Electronics  
Transactions Paper Review Chair,  
Chair, IEEE Industry Application Society, Electric Machine Committee

Steven Yurkovich  
IEEE Control Systems Society  
Nominating Committee  
Chair, Conference Administration Standing Committee  
Chair, CSM Best Paper Award Committee  
Chair, TAB Periodicals Review Committee  
IEEE TAB Periodicals Committee

Yuan F. Zheng  
Vice Chairman for Publicity, 2003 IEEE International Conference on Robotics and Automation.  
Program Vice-Chairman, 2003 International Conference on Intelligent Robots and Systems  
Editorial Board, Journal of Autonomous Robots  
Associate Editor, International Journal of Intelligent Automation and Soft Computing  
Associate Editor, International Journal of Intelligent Control and Systems
Masters Degree Students Graduated in 2002-2003

Advisor

Anand Arunachalam        H. El Gamal
Bonny Banerjee           B. Coffman
Michael Lee Baum         K. Paaino
David Andrew Bayer       S. Bibyk
Shantanu Bhattacharjee   S. Ahalt/A. Durresi
Bijoy Bhukania           P. Schniter
Qiang Chang              B. Clymer
DeHua Chen               R. Lee
CheonYonghun             J. Johnson
Xian Cui                 P. Roblin
Metin Aytekin Demir      J. Johnson
Matthew Robert Dexter    W. Burnside
Nirmal Kumar Dhanaekaran J. DeGroat
Sudha SDhoorjaty         B. Coffman
David Alan Dieter        E. Newman
Kevin Michael Farrell    F. Ozguner
Alex Forlenru            F. Ozguner
Wendy Lynn Garber        R. Moes
Michael Stephen Gilbert  J. Johnson
Kavitha Shyam Golconda   F. Ozguner
Alfonso R Hayslip        J. Johnson
Wei Hu                   D. Orin
Yik-Kiong Hue            F. Teixeira
Jyothi Sri Innamuri      A. Durresi
Shuangang Jiang          U. Ozguner
HaiLong Jin              J. DeGroat
Julka Kanu               K. Boyer
Jooshik Kim              A. Krishnamurthy
Gokkan Korkmaz           F. Ozguner
Prabhu Krishnamoorthy    K. Boyer
Cory Lee Lanker          R. Rjas
Eugene Yi-chien Lee      E. Newman

Advisor

Ming Lee                 E. Newman
Seung-Choel Lee          J. Lee
Yiting Liu               U. Ozguner
Kuei-Liang Lu            P. Roblin
Yu Luo                   S. Yurkovich
Wenjing Ma               E. Newman
Oussa Marashdeh          F. Teixeira
Jayanta Mukherjee        P. Roblin
Rachman Mulyana          L. Potter
Vinay Kumar Nadig        S. Bibyk
Harikrishna Natarajan    A. Krishnamurthy
Nakasit Niltawach        J. Johnson
Sung-Hoon Oh             E. Newman
Luther Palmer            D. Orin
KalaynSunder Paramasivan S. Sebo
Kavitha Radhakrishnan    F. Khan
Veena Raghavan           F. Khan
Anthony Thomas Rice      P. Berger
Steven Rodenbaugh        D. Orin
Roengnut Rujanakram     A. Serrani
Siddharth Samsi          A. Krishnamurthy
Dan Shen                 J. Cruz
Benjamin Jared Sikes     E. Newman
Duane Skeleton          S. Bibyk
Rajesh Thirunam    J. DeGroat
Neelakantam Venkataramu S. Sebo
Vineeth Vijayaraghavan  R. Lee/F. Teixeira
Lai Wei                  F. Khan
Mo Wei                   O. Takeshita
YuleiWeng                J. Cruz
Gang Xiong              B. Anderson
Liquan Xu               O. Takeshita

Ph.D. Students Graduated 2002-2003

Advisor

Tankut Azcman              U. Ozguner
Hongjo Ahn                 M. El-Naggar
Defne Aktas                M. Fitz
Emre Aktas                 P. Schniter
Jianyu Dong                Y. Zheng
Yuan Gao                   H. Ozbay
VeyesGazi                  K. Paaino
Tamer Selim Ibrahim       R. Lee
Gregg Huascarjess          L. Brillson
Yongjin Kim               E. Newman
Shengming Li               L. Xu
Thomas Moore              W. Burnside
Weiguo Que                 S. Sebo
Pierre-Francois Quet      H. Ozbay
Brian Rigling             R. Maes/L. Potter
Wladimir Villarroel       B. Munk
Zhang Yan                V. Utkin/G. Rizzoni

Advisor

Yifan Xu                   P. Berger
Xuan Zhang                 O. Takeshita
Kazhong Zhao              J. Lee
Undergraduate Scholarships

Many Electrical Engineering students at The Ohio State University have been fortunate recipients of scholarships given by generous alumni, faculty and friends of the department. Some of the donors have made their gifts anonymously, others have given “in memory of...” Among the named scholarship funds are

Eugene C. and Mona Fay Gee Memorial Fund, established in 1965 with a bequest from Mona Fay Gee (B. Phil. 1897) in memory of her husband, Eugene C. Gee (M.E. Elec. Eng. 1897), herself, and her father and mother, Dr. David C. Fay and Mrs. Mary A. Fay.

Sarah Eliza and Martin Luther Dickey M Memorial Fund in Electrical Engineering. Established in 1989 from the estate of Albert Dickey, in memory of his parents.


Frank C. and Louise Orton Caldwell Memorial Fund, was created to jointly honor Frank Caldwell, the first chairman of the Department of Electrical Engineering, and his wife, Louise Orton Caldwell, the daughter of Edward Orton, the first president of The Ohio State University.

John F. Byrne and Perry Okey Memorial Scholarship Fund in Electrical Engineering. This fund was established in 1983 with gifts from John Byrne’s family and friends.

Everett L. Shaffstall Engineering Scholarship Fund, established in 1976 by Mr. Shaffstall (B.S. Elec. Eng. 1963), to provide need-based scholarships for academically able undergraduates and graduates.

Benjamin G. Lamme Scholarship Fund, established in 1926 with a bequest from Benjamin G. Lamme.

Bockstiegel
Karen Barnard
Blake Betz
Albert Byun
Ronald Chandra
Jeffrey Chow
Anthony Eddy
Budi Hoen
Liya Hsin
Abdul Kalash
Koog Kim
Elizabeth Miller
Ana Panik
Jaon Parker
Ryan Schultz
Chuck Shaffer
Eric Tantuli
Paul Tandillo
Douglas Thornton
Andrew Warnock

Brockman
Jacob Adams
Burton Andrews
David Bradway
Erik Chapla
David Daniel
Jeffrey Duly
Mark Elias
Rox Heys
Laura Humphrey
Nishad Junakkar
Mark Kaschner
Stephen Leifer
Andrew O’Brien
Adam Porr
Jonathan Ulrey
Justin Weber

Byrne Okey
Jacob Adams
Matthew Brown
Beau Austen Lalone
Carl Marrilli
George Me Williams
John Sandora
Jayant Taneja
Steven Wise
Brent Woods

Mathis
Jonathan Saxon
Evon R. Wilcox

Caldwell
Jacob Adams
Burton Andrews
David Bradway
Erik Chapla
David Daniel
Jeffrey Duly
Mark Elias
Rox Heys
Laura Humphrey
Nishad Junakkar
Mark Kaschner
Stephen Leifer
Andrew O’Brien
Adam Porr
Jonathan Ulrey
Justin Weber

Gee
Joshua Abbot
Gabriel Abraham
Lauren Ador
Raymond Amstook, Jr.
Viveka Aznari
Brian Ayers
Kenneth Balogh
Palak Bhatt
Margaret Blake
Ryan Bokman
Andrew Brockman
Matthew Brown
Clinton Buse
Andrew Carlin
Jeremy Carver
Jain Casillo
Chiri Cing Chang
Yen-Bing Chien
Lianghao Chen
Fung Cheung
Ying-Chiang Chien
Cheng-Lin Chien
Ting-Hsiang Chiang
Josephine Clark
Andrew Clynes
Peter Codorva
Simon Curran
Trevor Curry
Patrick Delehanty
Hui-Yang Doh
John David Donofrio
Eric Elbon
Eric Fales
Mark Frankford
Hussein Aziz-Frosh
Gregory Funk
Beail Gohar
Joseph Gorse
Nengah Hadi
Yu-Chan Hou
Fang Huang
Dan Nan Huih
George Hwang
Ahmed Jami
Khalid Omar Jaza
Humaid Kadoh
Sean Kinney
Matthew Kollman
Dana Kohlgraf
Matthew Kollmorgen
Jonathan Koperschek
Sarah Kovach
Beau Austen Lalone
Jarred Lawler
Mark Lehman
Patricia Lesmana
Wai-Fan Leung
Adam Lindsay
Christopher Long
Brandon Lowrie
Donna Lu
Michelle Lyons
Christopher Markstein
Molly McCarthy
Jason Mc Collough
Steven Meredith
Tristan Monroe
Fatemeh Motwali
Jennifer Napier
Matthew Niefar
Sa-Tong Ng
Sean Gregory Olding

Lauren Orr
Sudharsan Parthasarathy
Ananda Patankar
Eric Caron Pedersen
Christopher Petrola
Charles Phillips
Sukhas Prasad
Joseph Prorost
John Pye
Michael Roberto
Andrew Roth
Mitchell Sarlosa
Stephen Sawyer
Jonathan Saxon
Michael Schlatt
Mathew Schmidt
Kevin Schultz
Tooba Shafi
Aziz Shuma
Benjamin Simshiner
Christopher Slattery
Allan Solomon
Steven Stacklin
Emily Super
Michael Sweeney
Khadija Tan
Ching-Lung Tan
Michael Tang
Christopher Tilley
Michael Vanchy, Jr.
Nathan Viers
Jennifer Wagner
Fred Weiss
Evon Wilcox
Gestaas Willows
Patrick Zink
Undergraduate Program

The ECE Advising Team continues to work to best accommodate our students' needs to increase retention for completion of the BSECE, other Engineering degrees when appropriate, and for Graduate Studies. Ms. Carol Duhigg continues to support the department creating and maintaining the teaching schedule, gathering department statistics, conducting queries, processing teaching evaluations, and ensuring that department literature is correct. Mr. Stephen O’Connell left his pre-ECE advising position in mid-June and Ms. Cory Matyas joined our team as our Pre-ECE advisor in early September. Cory concentrates her efforts on teaching the survey class and monitoring students’ pre-major grade point averages to best assure their success. Susan Noble manages the advising team, counsels students in the major, monitors the graduation process, and submits petitions. Mr. Nasser Kashef, our graduate assistant advisor also returned in September to advise students and assist with entry to major and probation. Fatema Motiwala and Saad Malik, our student assistants provide additional clerical support.

Professor Chuck Klein continues to refine our student tracking capabilities, which greatly enhances the effectiveness of the advising team. More and more we are able to emphasize prevention of problems and solutions. Professor Donald Kasten, our transfer credit evaluator now posts the transfer credit he awards students directly on the Web.

We have 157 new First Quarter Freshmen this Autumn 03, compared to 180 in AU02. Current enrollments are 412 pre-majors and 567 majors, totaling 979, compared to 993 in AU02. Students are opting to keep their GPA’s high increasing their options after graduation instead of overloading to graduate sooner. There is particularly strong interest in graduate programs, with electrical and computer engineering, MBA, and biomedical programs areas of greatest focus.
Financial Summary

Expenditures 2002-3

Instruction (includes benefits) $7,275,367

Research Expenditures
  Federal and Non-federal 11,410,250
  State and University 5,513,287

Total Research Expenditures 16,923,537

Total Expenditures $24,198,904