Electrical and Computer Engineering Department

2000-2001 Annual Report

September 1, 2000 - August 31, 2001
**Table of Contents**

Department Head’s Memo 3  
Faculty Awards and Honors 4  
FY 2000-2001 ECE Research Awards and Expenditures 7  
Major Research Awards 8  
New Research Centers 9  
ECE Department Awards and Recognition Dinner Ceremony 10  
Student Awards and Honors 12  
Alumni Achievements 14  
New Faculty Recruitment 15  
Faculty Appointments, Elections, and Sabbaticals 16  
Staff Appointments and Promotions 16  
ECE Faculty Retreat 17  
ECE Curricular/Research Groups 17  
ECE Standing Committees (July 1, 2001 – June 30, 2004) 19  
Enrollments and Curriculum 21  
ECE Ph.D. Degrees Completed in AY 2000-2001 24  
Other Ph.D. Degrees Supervised by ECE Faculty and Completed in AY 2000-2001 25  
ECE Advisory Council 25  
Institutional Advancement Activities 26  
Facility/Laboratory Improvements 26  
National Rankings 27  
Other Departmental News 28  
ECE Social Events in AY 2000-2001 29  
Challenges and Goals for the ECE Department in AY 2001-2002 30  
Appendix A: ECE Department FY 2000-2001 Research Awards 33  
Appendix B: ECE Department FY 2000-2001 Research Expenditures 35
Memorandum

To:    Constantine Papadakis, President
       Richard Astro, Provost
       Harvill Eaton, Vice President for Research & Graduate Programs
       Barbara Spiro, Senior Vice President for Institutional Advancement
       Anthony Glascock, Vice Provost for Academic Affairs
       Selçuk Güçeri, Dean of Engineering

From:  Nihat Bilgutay
       Department Head

Date:  September 28, 2001

Re:    ECE Department Annual Report 2000-2001

Enclosed please find the ECE Department Annual Report covering the period September 1, 2000, through August 31, 2001. It is my pleasure to share with you this report, which briefly highlights the key events and activities in the ECE Department and the outstanding accomplishments of our faculty, staff, students, and alumni during the past academic year. I am pleased to note that the ECE Department and its faculty continue to play a key role in the development and vitality of our University.

cc:    ECE Faculty
       ECE Advisory Council
       Mun Choi
       Richard Weggel
       Frank Glazer
       Larry Blenner
       Bruce Makous
       Lydia Kokolskyj
Faculty Awards and Honors

- Dr. Moshe Kam was elected Fellow of IEEE for 2001 "for contributions to the theoretical foundations of decision fusion and distributed detection." The IEEE Grade of Fellow is conferred by the Board of Directors upon a person of outstanding and extraordinary qualifications and experience in IEEE designated fields, and who has made important individual contributions to one or more of these fields. Election to IEEE Fellow is one of most prestigious honors the Institute can bestow upon its members- it is the highest grade of membership in the IEEE. The election process is extremely rigorous and less than one in a thousand IEEE members are recognized with this honor each year.

- Dr. Eli Fromm, Roy A. Brothers University Professor, has been awarded the IEEE Education Society Achievement Award for the year 2001. The citation for the award reads: “For outstanding leadership in the advancement of engineering education.” The award will be presented to Dr. Fromm at the Awards Dinner on Saturday, October 13th, during the Frontiers In Education conference to be held in Reno, Nevada during October 10 to 13, 2001.

- Dr. Karen Miu is a recipient of a prestigious award sponsored by the U.S. Office of Naval Research Young Investigator Program. The program provides research funding to faculty members who are at an early stage in their careers. There were only twenty-six recipients chosen for this award, which totals $330,000 over three years. The award will support Dr. Miu’s research on power distribution systems.

- Dr. Stewart Personick, E. Warren Colehower Chair Professor and Director of the Center for Telecommunications and Information Networking, has been selected by the National Research Council to chair the Committee on Critical Infrastructure and the Law. Dr. Personick was nominated for the prestigious position by the National Academy of Engineering President, Dr. Wulf. The focus of the committee will be on critical infrastructure protection, policy, and legal issues.

- Dr. Moshe Kam was elected as the 2001-2002 Delegate-Elect/Director-Elect of Region 2 of the Institute of Electrical and Electronics Engineers (IEEE). There are 35,000 members in IEEE's Region 2, which includes Washington D.C., Northern Virginia, Maryland, Delaware, Southern New Jersey, Pennsylvania, Ohio, and West Virginia. IEEE is the largest professional organization in the world with over 350,000 members. As part of his duties, Dr. Kam will serve as a delegate on the 23-
member IEEE Assembly in 2003-2004, and be a member of the Corporation’s Board of Directors. Dr. Kam joins Drs. Bruce Eisenstein and Eli Fromm as Drexel faculty members who have served on the Board of IEEE.

- Dr. Peter Lewin, Richard B. Beard Professor of Electrical and Computer Engineering and Biomedical Engineering, is a recipient of the Drexel University Distinguished Professor Award. The award includes a cash prize of $15,000 per year for five years. Lewin is also the director of the Ultrasound Research and Education Center in the School of Biomedical Engineering, Science, and Health Systems. He was recently appointed to the prestigious Franklin Institute Committee on Science and the Arts.

- Dr. Bahram Nabet was the recipient of the Drexel University Senior Faculty Undergraduate Teaching Award. He was recognized at the Teaching Excellence Day Ceremony on May 24, 2001.

- Dr. Eli Fromm, Roy A. Brothers University Professor, received the College of Engineering Medal for Outstanding Leadership for his exceptional efforts to improve engineering education. He was the PI for the NSF supported $^4$ curriculum initiatives, and, since 1992, he has also been the PI and Director of the Gateway Engineering Education Coalition, which extends the earlier $^4$ work to the full undergraduate program and broader issues of the educational enterprise.

- Dr. Stewart Personick was the recipient of the College of Engineering Faculty Achievement Award for Research Accomplishment. He was awarded a $7.5 million contract in 1999 by the Defense Advanced Research Projects Agency to lead a regional research consortium to conduct research on key enabling technologies to foster the realization of the next generation Internet and to demonstrate its power through networked applications in bio-complexity and bio-informatics. Dr. Personick is also the PI for a $10.84 million contract received in 2001 for Project ACIN, which aims to educate military personnel and develop enhanced networking and communications systems for the military.

- Dr. Kevin Scoles, associate professor and assistant department head for undergraduate affairs, received the College of Engineering Faculty Achievement Award for Service Accomplishment. He played a major role in the development of the ECE-21 Curriculum, which built on TDEC to provide ECE students with a completely restructured modern curriculum. He also serves as the Co-chair of the COE Assessment Committee and was instrumental in establishing a college-wide Web-based assessment process, which includes course surveys, ABET a-k surveys, and the senior exit survey.

- Dr. Mahmoud El-Sherif, director of the Fiber Optics and Photonics Manufacturing Engineering Center and research professor of Materials Engineering and Electrical and Computer Engineering, was nominated in December 2000 to serve on the National Republican Congressional Committee (NRCC). The NRCC is comprised of non-elected officials who provide a wide range of policy recommendations to the
U.S. Congress. At upcoming NRCC meetings, Dr. El-Sherif will propose ideas for enhancing technology development, increasing international trade and transfer of technology and expanding technology transfer between academia and industry. He will also serve on the economics and business sub-committee of the NRCC.

- Dr. Maja Bystrom received the Fulbright Award to spend July and August 2001 in Munich, Germany, for research collaborations.
- Dr. Karen Moxon, adjunct assistant professor in the Department of Neurobiology and Anatomy at MCP Hahnemann and assistant professor in the School of Biomedical Engineering, Science and Health Systems and affiliated faculty in the Electrical and Computer Engineering Department, is a co-editor with Dr. John Chapin of a recently published book, *Neural Prostheses for Restoration of Sensory and Motor Function* (CRC Press). Moxon is involved in research that uses implanted electrodes to determine which neurons control certain muscle movement.

- Dr. Athina Petropulu was elevated to Senior Member of IEEE.

- Dr. Bruce Eisenstein received the IEEE Region 2 Pinnacle Award for attaining the IEEE presidency while member of Region 2. He is the past president of IEEE

- Dr. Bruce Eisenstein hosted the Computer Summit in Hong Kong, which brought together key players in the field of computing in South East Asia from universities, industry, and government.

- Many faculty members of the ECE Department were recognized at the Research Day 2001 Awards Ceremony on May 2, 2001, including:

  **10^6 Club Award**
  Ata Akin  
  Maja Bystrom  
  Peter Herczfeld  
  Stewart Personick  
  Athina Petropulu  
  Kambiz Pourrezaei  
  Warren Rosen  
  Harish Sethu  
  Oleh Tretiak

  **Research Synergy Grant**
  Ata Akin and Scott Bunce (MCPHU)  
  Ata Akin and James Reynolds (MCPHU)  
  Karen Moxon and Shao-pii Onn (MCPHU)

  **Patent Award Winners**
  Alex Meystel and Sameh Uzzaman; Multiresolutional decision support system: 6,102,958
• The following members of the ECE faculty and staff were recognized at the 2000 Annual Employee Service Awards for their dedicated service: Vaughn Adams (5 years); Tanita Chappelle, Mahmoud El-Sherif, Tom Halpin, Leon Hrebien, and Bahram Nabet (10 years); Alex Meystel (15 years); Dov Jaron, Paul Kalata, and Banu Onaral (20 years).

FY 2000-2001 ECE Research Awards and Expenditures

The combined ECE Grant/Contract Awards including the multi-unit awards for FY 2000-01 (1 July 2000 to 30 June 2001) totaled $10,951,621. This shows an increase of 21.2% from FY 1999-00. Please note that this reflects the total grant budgets received in FY 2000-01, including the multi-year awards in accordance with the new reporting procedure initiated by the VPR’s Office effective FY 1999-2000. The ECE total corresponds to 49.5% of the COE and 21.2% of the University totals for the same period. A list of the individual ECE research grant awards for FY 2000-01 is attached to the report (Appendix A).

<table>
<thead>
<tr>
<th>FY</th>
<th>Total ECE Awards</th>
<th>% of COE Awards</th>
<th>% of DU Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>96-97</td>
<td>$2,252,137</td>
<td>35.5%</td>
<td>15.0%</td>
</tr>
<tr>
<td>97-98</td>
<td>$2,247,896</td>
<td>33.7%</td>
<td>12.1%</td>
</tr>
<tr>
<td>98-99</td>
<td>$3,010,375</td>
<td>31.5%</td>
<td>14.3%</td>
</tr>
<tr>
<td>99-00</td>
<td>$9,040,071</td>
<td>61.5%</td>
<td>28.1%</td>
</tr>
<tr>
<td>00-01</td>
<td>$10,951,621</td>
<td>49.5%</td>
<td>21.2%</td>
</tr>
</tbody>
</table>

• The combined ECE Grant Expenditures for FY 2000-01 (1 July 2000 to 30 June 2001) totaled $8,351,565, showing an increase of 192% (i.e., nearly tripled) from FY 1999-00. The ECE total corresponds to 57.7% of the COE and 29.5% of the University total expenditures for the same period. Note that beginning with FY ’00-01, Gateway Central awards and expenditures are being included in the ECE/COE totals. A summary of ECE, COE and DU research expenditures for FY 2000-01 is attached to the report (Appendix B).

<table>
<thead>
<tr>
<th>FY</th>
<th>Total ECE Exp.</th>
<th>% of COE Exp.</th>
<th>% of DU Exp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>96-97</td>
<td>$2,817,939</td>
<td>37.6%</td>
<td>15.9%</td>
</tr>
<tr>
<td>97-98</td>
<td>$2,406,672</td>
<td>37.1%</td>
<td>15.7%</td>
</tr>
<tr>
<td>98-99</td>
<td>$2,665,461</td>
<td>39.7%</td>
<td>15.0%</td>
</tr>
<tr>
<td>99-00</td>
<td>$2,860,793</td>
<td>30.2%</td>
<td>15.7%</td>
</tr>
<tr>
<td>00-01</td>
<td>$8,351,565</td>
<td>61.6%</td>
<td>29.5%</td>
</tr>
</tbody>
</table>
Major Research Awards

- Dr. Stewart Personick, E. Warren Colehower Chair Professor and Director of the Center for Telecommunications and Information Networking received a $10,840,000 contract for the Applied Communications and Information Networking (ACIN) Project, which aims to educate military personnel and develop enhanced networking and communications systems for the military.

- Dr. Eli Fromm, Roy A. Brothers University Professor, received $2,5000,000 grant from the National Science Foundation for Year 9 of the Gateway Engineering Education Coalition Program consisting of seven universities.

- Dr. Peter Hereczfeld, Lester A. Kraus Professor and Director of the Center for Microwave/Lightwave Engineering, received a $1.2 million Office of Naval Research grant for the development of a “Hybrid Fiberoptic/Wireless System for High Capacity Military Communications.” Dr. Maja Bystrom, assistant professor of electrical and computer engineering, is a Co-I on this grant.

- Dr. Kambiz Pourrezaei, professor of electrical and computer engineering, and Ata Akin, research assistant professor of electrical and computer engineering, received $1,083,184 in funding from the Office of Naval Research to study “Tissue Characterization by Functional Optical Imaging Using LIDAR Technology.” The three-year endeavor is the first major project of the Biomedical Optics Initiative aimed at developing affordable, non-invasive or minimally invasive functional imaging devices and systems based on biophotonics.

- Dr. Kambiz Pourrezaei, professor of electrical and computer engineering, received an award for $1,250,000 from the Ben Franklin Technology Center of Southeastern Pennsylvania for Nanotechnology research initiative.

- Dr. Baki Farouk (MEM) and Dr. Constantine Katsinis (ECE) have been awarded an IBM SUR (Shared University Research) computer grant. IBM SUR grants are highly competitive. The IBM grant is valued at $400,000. The grant along with a $300,000 NSF-MRI grant (PI's B. Farouk, R. Cairncross, C. Katsinis, A. Zavaliangos and A. Zerva) received last year will allow the College to carry out advanced computational research in areas of critical importance in science and engineering.

- Leon Hrebien has been awarded a contract titled “Alliance for Data Analysis between SmithKline Beecham and Drexel University.” Dr. Hrebien and his team will explore novel methods of data analysis to study gene and protein expression (genomics and proteomics) data. The sponsor funding for the project is $483,972 for approximately four years.

- The ECE department and the School of Education jointly received an I-Grad Link-to-Learn grant from the State of Pennsylvania for the proposal entitled: “Intelligent Systems and Applications: A 21st Century Opportunity for the People of”
Pennsylvania.” This is a one-year $496,500 award and was the largest Link-to-Learn award made in the state. Dr. Fredricka Reisman (School of Education) and Dr. Nihat Bilgutay (ECE) are the joint PIs and Drs. Stewart Personick (ECE) and Craig Bach (School of Education) are the Co-Is on the project.

New Research Centers

The Nanotechnology Center

Dr. Kambiz Pourrezaei has been a major player in the effort to establish a regional Nanotechnology Center. Along with Dr. David Luzzi, associate professor of materials science and engineering at the University of Pennsylvania, Dr. Pourrezaei co-authored the proposal for this project, which received a $10.5 million three-year grant. The proposal was submitted to the Pennsylvania Technology Investment Authority (PTIA) in collaboration with Dr. Barry Stein, Executive Vice President of the Ben Franklin Technology Partners of Southeastern Pennsylvania (BFTP/SEP).

The new Center will bring tremendous opportunities to Drexel faculty and students from various colleges and departments across the University. The PTIA award will be used to create a Nanotechnology Center that will operate as a virtual epicenter by supporting various research projects. The thrust of the Center will be on interdisciplinary and collaborative research as well as technology commercialization.

ACIN – The Applied Communications and Information Networking Project

As a result of the effort and vision of Dr. Stewart Personick, Drexel is participating in a partnership with Sarnoff Corporation, the University City Science Center Port of Technology, and the Army Communications and Electronics Command to form a new Center for Applied Communications and Information Networking (ACIN). A $10.84 million award from the Department of Defense (DoD) is funding the establishment of this Center, which will be located in Camden, New Jersey. Along with Dr. Personick, Drs. Athina Petropulu and Harish Sethu are key investigators for this project, and several other faculty members will also be participating. Mr. Thomas Fagan is the program general manager.

ACIN focuses on the needs of the DoD by addressing the demands and challenges of conducting warfare and peacekeeping operations in twenty-first century confrontations. ACIN will focus on fostering cooperation between academia, industry, and government to ensure the development of reliable and efficient information networks and associated communications systems that are responsive to the needs of the DoD. The collaborative alliances promoted by ACIN will also facilitate commercialization and business incubation of products and processes of particular interest to the DoD.
NSA Center of Academic Excellence

The National Security Agency (NSA) designated Drexel University as a Center of Academic Excellence in Information Assurance Education. The University was among nine new centers of excellence designated this year and one of only 23 schools in the nation that have received this recognition thus far. Drs. Moshe Kam and Stewart Personick were instrumental in securing the honor, and Dr. Kam will serve as director of the Center.

The University was recognized for its outstanding achievements in education and research involving information assurance. The NSA has provided this distinction to a select group of universities whose "commitment to the field of information assurance education is essential to producing ...professionals with the skills needed to improve the protection of the National Information Infrastructure."

ECE Department Awards and Recognition Dinner Ceremony

The annual ECE Department Awards and Recognition Dinner Ceremony was held on February 23, 2001, at the Drexel University Faculty Club.

Distinguished ECE Alumnus Award: Dominic Villecco

Dominic Villecco, President and founder of V-Comm, is a pioneer in wireless telecommunications engineering. He received his BSEE from Drexel in 1983, and he has twenty years of executive-level experience as well as experience in various engineering management positions. He founded V-COMM in 1996 as a start-up venture, and it is now a highly respected full-service consulting telecommunications-engineering firm. Before forming V-COMM, he spent ten years with Comcast Corporation, where he held management positions of increasing responsibility.

Villecco’s professional activities include membership in IEEE. He has supported Drexel in a number of capacities, including his service on the ECE Advisory Council and his creation of the Villecco Family Endowed Scholarship Fund for ECE students.

Allen Rothwarf Outstanding Undergraduate Student Award: Andrew Fitting

Andrew Fitting is in the process of completing his Senior Design project, which deals with Gigabit Wireless Communications. During his various co-ops, Fitting gained experience with RF test equipment, design of matching networks, and programming of a Motorola 68HC705 microcontroller in assembly language. He also served as a lead engineer in the design of a new RF attenuator, and he has delivered a paper at the IEEE International Microwave Symposium held last June.

Fitting tutors Drexel students in the RF Track. He also tutors middle school students. He believes his experience in tutoring is preparing him for a possible future in teaching. He is also considering pursuing high frequency IC design, preferably transistor level design.
Allen Rothwarf Outstanding Graduate Student Award: Xiying Chen

In 1993 Xiying Chen graduated from Fudan University, China, with an undergraduate major in Applied Physics. She continued her studies in condensed matter physics at Fudan University, completing a M.S. degree in 1996. Her graduate work produced twelve published papers and two patents.

Since 1998, Chen has been pursuing her Ph.D. at Drexel under the advisement of Dr. Bahram Nabet. Chen’s research involves the design of a novel photodetector suitable for long haul communication and modeling of its physical mechanism through theoretical simulation. She has already developed a closed-form analytical expression for a delta-doped modulation heterostructure and is interested in using a new design and new materials in an electronic device, hoping to explain its mechanism from physics.

Thomas W. Moore Award for Continued Dedication to Excellence and Innovation in Teaching: Dr. Bahram Nabet

Dr. Nabet graduated from Purdue University with a BSEE in 1977, and he continued his studies at the University of Washington, earning a MSEE in 1985 and a Ph.D. in 1989. He has been a faculty member at Drexel since 1989, where he serves as an associate professor. One of his significant accomplishments at Drexel has been the establishment of the Microfabrication Facility. He has also introduced several graduate courses in the area of semiconductor devices.

His main research focuses on optoelectronic devices and systems, and he has approached this field by finding parallels between the interaction of light and matter in biological systems and in synthetic materials. He is the author of numerous publications and holds 2 patents.

ECE Research Achievement Award: Dr. Athina Petropulu

Dr. Petropulu received the Diploma in Electrical Engineering from the National Technical University of Athens, Greece in 1986, and then completed her MS in Electrical and Computer Engineering in 1988 and her Ph.D. in 1991, both at Northeastern University. She has been a faculty member at Drexel since 1992, where she is currently an associate professor. During the 1999-2000 academic year, she was Directeur de Recherche de 2eme classe at the Laboratoire des Signaux et Systemes, CNRS-Universite Paris Sud, Ecole Superieure d’Electricite, France.

Her research interests span the area of statistical processing, communications, higher-order statistics, ultrasonic image processing and earthquake engineering. In 1995 she received the Presidential Faculty Fellow Award for work in electrical engineering. She is the co-author of a textbook and currently serves as an associate editor for the IEEE Transactions on Signal Processing Letters.
Student Awards and Honors

- The following ECE students received top honors in the June graduation:

  First Honors EE  Keith Christman  4.0
  First Honors CE  Douglas Szperka  4.0
  Second Honors EE Adam O'Donnell  3.95
  Second Honors CE David Goldberg  3.96

- The projects listed below received 2001 ECE Senior Design Awards, and each winning team received a $500 prize, which was distributed equally among the team members.

  **Formation Awards:**
  ECE-15: Muscle Stimulation Device
  Team Members: Jason Connell, Jeanine Lesaint, David Rittel, and Jason Yan
  Faculty Advisor: Dr. Kevin Scoles
  ECE-17: Compact System to Monitor Network Devices
  Team Members: Hoang Nguyen, Ngoc Nguyen, Tho Nguyen, Huy Pham, and Vo Nhat
  Faculty Advisor: Dr. Ruifeng Zhang

  **Unisys Award:**
  ECE-24: PCS-CDMA Network Drive System
  Team Members: Stephen Basuki, Chun Leung, Derek Lim, Luis Munoz, and Yevgeny Shubinsky
  Faculty Advisor: Dr. Stewart Personick
  ECE-26: Coreware IPv4 to IPv6 Bridge
  Team Members: Keith Christman, Adam O'Donnell, Chayil Timmerman, and Suma Varghese
  Faculty Advisor: Dr. Harish Sethu

  **ECE Department Award:**
  ECE-3: Epileptic Seizure Detection System
  Team Members: Valerie Kuzmick, John Lafferty, April Serfass, Doug Szperka, and Benjamin Zale
  Faculty Advisors: Drs. Prawat Nagvajara, Karen Moxon, and Jeremy Johnson

- The ECE Department was represented with distinction by two of the above senior design teams in the 2001 COE Senior Design Competition. The ECE-3 Team’s project, Epileptic Seizure Detection System, received the “Third Place Award” and a $500 prize. The ECE-15 Team’s project, Muscle Stimulation Device, was recognized with the “Runner-Up Award” and a $300 prize.
The Drexel Student Chapter was awarded the IEEE Section Membership Growth Award for this year. The IEEE Section Membership Growth Award recognizes the section in each region for having achieved the highest rate of growth. This means that the Drexel Student Chapter was the fastest growing student branch in Region 2. Biomed senior, Barbara Salami, was the Student Chapter Chair, and her exceptional efforts led to the successful recruitment effort. Salami was recently elected as the new Student Chapter representative of the Philadelphia Section IEEE Executive Board. Salami received the Alan L. Kirsch Outstanding IEEE Student Member Award for contributions to IEEE activities in the Philadelphia Section, and demonstrated professional involvement and leadership. Salami also received a $5,000 IEEE Student Branch Leadership Scholarship for the academic year 2001-02.

Lori Swanson, Drexel senior Electrical Engineering student and softball standout, was named American East Female Scholar-Athlete of the Year. Lori, a 3.79 cumulative GPA EE major, was selected out of nearly 3,800 student-athletes competing in Division 1 athletics in America East as the No. 1 scholar-athlete of the year.

The following ECE Seniors Earned Co-op Awards for 2000-01: Jason Connell (3COM), Thomas Mogck (Unisys Corporation), and Douglas Szperka (ATI Research, Inc.).

ECE students Prashant Udeshi, Joseph Kenney, Nitin Khanna, and Ioannis Giannopoulos were selected as winners in the first round of competition of the Drexel Venture Fair sponsored by the Baiada Center for Entrepreneurship in Technology.

Doctoral student Xiying Chen and Dr. Bahram Nabet received second place for their paper, “A Novel Photodector Design for Long Haul Communication,” at the IEEE-sponsored Sarnoff Symposium on Advances in Wired and Wireless Communications in March 2001.

Sahil Kanhere received “special mention” for excellence as a Teaching Assistant for the AY 2000-01. He is Dr. Harish Sethu’s student and had received the TA Excellence Award in 1999. The ECE nominees for this year’s award were Li Bai, Michael Balog, Binning Chen, Xiaobo Hou, and Dinesh Obalappa.

Shameia Rogers, an electrical engineering sophomore, won the second place award in the Freshman Writing Contest for her essay entitled “Whatever You Say I Am.” She was recognized at the ceremony held on April 20, 2001.

The Future Energy Challenge judges, representing both IEEE and DOE, announced five Finalist teams, including Drexel University. The five teams will be competing for the Challenge Prize of $50,000 on October 1, 2001 at Chicago. The five finalist teams, plus nine other teams that participated in the report judging process will be eligible for additional prizes totaling $25,000. The Drexel team is advised by Dr. Chika Nwankpa and consists of the following students:
Undergrads:  
Daniel T. Brown Mech. Eng  
Sumit Dutta ECE  
Anika Nixon ECE  
Rony Pappan ECE  
Nicholas Scurria ECE  

Grads:  
Anawach Sangswang (Lead Student)  
Stephen Carullo  
Chris Dafis  

- A number of ECE students were recognized at the 2000-2001 College of Engineering Honors Day Ceremony, which was held on February 21, 2001. This year’s award recipients include:

- **Graduate Student Research Award**  
  Arkady Kopansky

- **Undergraduate Student Research Award**  
  Adam J. O’Donnell

- **Blasi Family Annual Award**  
  Martin W. Blasko, Jeremy R. Hoff

- **Robert Fischl Annual Prize**  
  Jeanine M. LeSaint

- **Lester Kraus Award**  
  Anthony V. Nasuti

- **Lockheed Martin Scholarship**  
  Kevin A. Austin, Kunal Shah

- **Thomas W. Moore Endowed Fund**  
  Aniket G. Hirebet, Kenneth L. Hoyt

- **Robert G. Quinn Scholarship**  
  Chai Chen

- **Allen Rothwarf Endowed Scholarship**  
  Andrew Fitting and Xiying Chen

- **Arthur W. and Blanche Garroway Vanaman Scholarship**  
  Nimeshkumar N. Patel, Brian M. Payne

- **James G. and Anne M. Crouse Endowed Scholarship Fund**  
  Thomas R. Mogck

- **George Hill, Jr. Endowed Fellowship**  
  Mohammad-Reza Tofighi

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**Alumni Achievements**

- Mel Baiada donated $1.5 million to fund the Laurence A. Baiada Center for Entrepreneurship in Technology last year. The center’s purpose is to encourage talented students to develop companies in the Philadelphia region. The center will provide business development tools and offer mentoring services from area business owners.

- Kevin O’Hara (B.S.E.E.’83) is President and Chief Operating Officer at Level 3 Communications. In 1998, Kevin co-founded Level 3 Communications and was responsible for expanding Level 3’s presence in the telecommunications industry to a Fortune 140 status. As evidence of his philanthropic dedication to his alma mater, he established the Kevin J. O’Hara Endowed Scholarship Fund at Drexel with a pledge of $1 million in 2000. Mr. O’Hara was recognized with the 2001 College of Engineering Alumni Achievement Award.

- Andres Lebaudy ('93 BS/MS EE, ’96 Ph.D.) and Gary Cane ('93 BSEE, MSEE '96), both former students of Dr. Moshe Kam, were featured in *The Philadelphia Inquirer*.
on June 18, 2001 for their development of a digital process controller, which is used by the Navy. Lebaudy and Cane are the founders and owners of Fairmount Automation, Inc. of Phoenixville, the company that produces the device.

- Kevin Lenhart ('00 BSEE) and David Brouda ('00 BSEE) both of Motorola gave the main presentation at the 2001 IEEE Philadelphia Section Awards & Recognition Dinner on “The Talking Book,” a 2000 ECE Senior Design project advised by Dr. Maja Bystrom.

- Dr. Celeste Belcastro (Ph.D.’94, EE) was the general chair of 19th IEEE Digital Avionics Systems Conference: Entering the Second Century of Powered Flight, which was held in Philadelphia, October 7-13, 2000.

- The following ECE alumni were recognized with the newly established COE Alumni Circle of Distinction Awards for significant career accomplishments: Charles Close (BSEE’36), Charles Holt (MSEE’66), Robert Okada (BSEE’48), and Vincent Vidas (BSEE’59, MSEE’64).

New Faculty Recruitment

Tenure-Track Faculty Recruitment Statistics for AY 2000-01 are as follows:

Applications Received: 120
On-Campus Interviews Conducted: 13
Offers Made: 6
Tenure-Track Faculty Hired: 2

Dr. Kapil Dandekar will be joining the ECE Department in September 2001 as Assistant Professor. He received his Ph.D. in 2001 from the University of Texas, Austin. He focuses on wireless communications systems.

Dr. Gary Friedman (Ph.D. University of Maryland 1989) will be joining the ECE Department as Professor in September 2001. He previously held a faculty position at the Electrical Engineering and Computer Science Department of the University of Illinois at Chicago as Associate Professor. His areas of interest are magnetic nano-technology and devices, magnetic sensors and MEMS.

Dr. Karkal Prabhu, (Ph.D. Harvard University 1971) will be joining the ECE Department in September 2001 as Visiting Professor. Dr. Prabhu’s expertise is in computer and software engineering, networking, advanced microprocessors and distributed operating systems. Dr. Prabhu is retired from the Indian Space Research Organization.

Dr. Suryadevara Basavaiah (Ph.D. University of Pennsylvania 1966) will be joining the ECE Department in January 2002 as Visiting Professor. His expertise is in custom circuit
design, VLSI technology and process, and silicon fabrication. Dr. Basavaiah will be retiring from IBM, T. J. Watson Research Center after 33 years of service.

Faculty Appointments, Elections, and Sabbaticals

• Upon the recommendation of the ECE “Named Professor Nominating Committee,” and the approvals of Dr. Bilgutay, Dean Guceri, Provost Astro, and President Papadakis, two of our colleagues have been appointed as named Professors:

  • Dr. Moshe Kam as Robert Quinn Professor of Electrical and Computer Engineering
  • Dr. Mohana Shankar as Allen Rothwarf Professor of Electrical and Computer Engineering

• Dr. Aspasia Zerva, Professor of Civil and Architectural Engineering, received a courtesy appointment in the ECE department. Dr. Athina Petropulu sponsored Dr. Zerva’s nomination for a courtesy appointment.

• Dr. Jeremy Johnson, Associate Professor of Mathematics and Computer Science, received a courtesy appointment in the ECE department. Dr. Prawat Nagvajara sponsored Dr. Johnson’s nomination for a courtesy appointment.

• Dr. Constantine Katsinis hosted Dr. Jose Martin, Professor of Electronics and Telecommunications at the University of Basque Country, during the summer of 2001.

• Drs. Kambiz Pourrezaei and Prawat Nagvajara were granted full-year sabbaticals for the AY 2001-02.

• At Dr. Kambiz Pourrezaei’s request, and with the required administrative approvals, his tenured position was moved from the Electrical and Computer Engineering Department to the School of Biomedical Engineering, Science and Health Systems. Dr. Pourrezaei has assumed the position of Director of Research in the Biomed School. As an affiliated member of the ECE faculty, Dr. Pourrezaei will continue to maintain an active presence in research, teaching and service within the ECE Department.

Staff Appointments and Promotions

Mr. Brandon McEndree resigned from his position as Graduate Programs Coordinator effective June 1, 2001 to pursue a new graphics design opportunity. Ms. Jennifer Hintze joined the department on June 25, 2001, as the new Graduate Programs Coordinator. She received her BA in English with a concentration in Business and Technical Writing from
the University of Delaware, May 2001. She brings many skills to the ECE department including, Web page design and desktop publishing.

Ms. Susan Hall, the Research and Development Coordinator, will be leaving the ECE department on August 2, 2001. She has received a full fellowship to Cornell University where she will pursue her PhD in English. Ms. Allison Steever replaced Susan as the new Research and Development Coordinator effective July 30, 2001. Allison received her Bachelor of Arts degree in 2000 from La Salle University, where she also minored in Business Administration. She has previously worked as Account Coordinator at Orenstein Advertising, Inc.

**ECE Faculty Retreat**

The Retreat was held on November 4, 2000, at the American College in Bryn Mawr. The retreat was highly successful with 18 attendees. The focus was mainly on finalizing the major aspects of the Implementation Plan for the 2000-05 ECE Strategic Plan.

**ECE Curricular/Research Groups**

The ECE Curricular/Research Groups were reorganized to reflect the current faculty research and teaching interests. The reorganized groups are as follows:

**Telecommunications & Networking**

<table>
<thead>
<tr>
<th>Core Members</th>
<th>Affiliated Members</th>
<th>Coordinator</th>
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</thead>
<tbody>
<tr>
<td>Maja Bystrom</td>
<td>Peter Herczfeld</td>
<td>Stewart Personick</td>
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<tr>
<td>Afshin Daryoush</td>
<td>Ryszard Lec</td>
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<tr>
<td>Bruce Eisenstein</td>
<td>Bahram Nabet</td>
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<td>Stan Kesler</td>
<td>Prawat Nagvajara</td>
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<tr>
<td>Stewart Personick</td>
<td>Athina Petropulu</td>
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<tr>
<td>Mohana Shankar</td>
<td>Harish Sethu</td>
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<tr>
<td>Ruifeng Zhang</td>
<td>Birsen Yazici</td>
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<tr>
<td>Nihat Bilgutay</td>
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<tr>
<td>Mahmoud El-Sherif</td>
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<td>Allon Guez</td>
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**Computer Engineering**

<table>
<thead>
<tr>
<th>Core Member</th>
<th>Coordinator</th>
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<tbody>
<tr>
<td>Jeremy Johnson</td>
<td>Harish Sethu</td>
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<tr>
<td>Constantine Katsinis</td>
<td>Stewart Personick</td>
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<tr>
<td>Alex Meystel</td>
<td>Ruifeng Zhang</td>
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<tr>
<td>Prawat Nagvajara</td>
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<td>Warren Rosen</td>
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</tbody>
</table>
Harish Sethu
Lazar Trachtenberg

**Controls, Robotics and Intelligent Systems**

**Core Member**
- Bill Freedman
- Allon Guez
- Paul Kalata
- Moshe Kam
- Karen Moxon
- Leon Hrebie
- Alex Meystel

**Coordinator**
- Karen Miu
- Dagmar Niebur
- Chika Nwankpa
- Stewart Personick
- Birsen Yazici

**Image and Signal Processing and Interpretation**

**Core Member**
- Nihat Bilgutay
- Fernand Cohen
- Leon Hrebie
- Banu Onaravel
- Athina Petropulu
- Oleh Tretiak
- Birsen Yazici
- Maja Bystrom
- Bruce Eisenstein
- Eli Fromm

**Coordinator**
- Moshe Kam
- Stan Kesler
- Ryszard Lec
- Peter Lewin
- Mohana Shankar
- Lazar Trachtenberg
- Ruifeng Zhang

**Electrophysics**

**Core Member**
- Mahmoud El-Sherif
- Eli Fromm
- Ed Gerber
- Peter Herczfeld
- Dov Jaron
- Ryszard Lec
- Peter Lewin
- Bahram Nabet
- Kambiz Pourrezaei

**Coordinator**
- Kevin Scoles
- Karen Moxon
- Stewart Personick
- Warren Rosen

**Power Engineering**

**Core Member**
- Karen Miu
- Dagmar Niebur
- Chika Nwankpa

**Coordinator**
- Kevin Scoles
- Chika Nwankpa
The process for the nomination and appointment of the new ECE Standing Committees and its Chairs was completed in the Spring 2001 term. The process has been very cooperative and carried out with the full involvement and consensus of the faculty. This includes the Assistant Department Heads for Undergraduate Affairs, Graduate Affairs, and Planning and Development, who respectively chair the Undergraduate Affairs, Graduate Affairs, and Planning and Development Committees. Accordingly, the new committees will start serving a three-year term, effective July 1, 2001. The committee memberships are listed below, both by committees and by Curricular/Research Groups.

**ECE Undergraduate Affairs Committee**
Kevin Scoles – Chair and Assistant Dept. Head for Undergraduate Affairs
Oleh Tretiak – Computer Engineering
Paul Kalata – Controls, Robotics, and Intelligent Systems
Ed Gerber – Electrophysics
Leon Hrebien – Image/Signal Processing and Interpretation
Karen Miu – Power Engineering
Stan Kesler – Telecommunications and Networking
Wayne Hill – ECE Staff
To be appointed – UG Student Representative

**ECE Graduate Affairs Committee**
Mohana Shankar – Chair and Assistant Dept. Head for Graduate Affairs
Harish Sethu – Computer Engineering
Alex Meystel – Controls, Robotics, and Intelligent Systems
Bahram Nabet – Electrophysics
Birsen Yazici – Image/Signal Processing and Interpretation
Dagmar Niebur – Power Engineering
Stu Personick – Telecommunications and Networking
Steve Carullo – Graduate Student Representative

**ECE Planning and Development Committee**
Oleh Tretiak – Chair and Assistant Dept. Head for Planning and Development
Alex Meystel – Computer Engineering
Allon Guez – Controls, Robotics, and Intelligent Systems
Peter Herczfeld – Electrophysics
Dagmar Niebur – Power Engineering
Bruce Eisenstein – Telecommunications and Networking
Wayne Hill – ECE Staff
Steve Carullo – Graduate Student Representative

**ECE Faculty Recruitment Committee**
Moshe Kam – Chair
Constantine Katsinis – Computer Engineering
Peter Lewin – Electrophysics
Athina Petropulu – Image/Signal Processing and Interpretation
Chika Nwankpa – Power Engineering
Maja Bystrom – Telecommunications and Networking
Steve Carullo – Graduate Student Representative

ECE Promotion and Recognition Committee
Promotion Sub-committee:
   Fernand Cohen – Chair
   Lazar Trachtenberg – Computer Engineering
   Eli Fromm – Controls, Robotics, and Intelligent Systems
   Kambiz Pourrezaei – Electrophysics
   Afshin Daryoush – Telecommunications and Networking

Awards, Nominations, and Recognition Sub-committee:
   Afshin Daryoush – Chair
   Chika Nwankpa – Power Engineering
   Steve Carullo – Graduate Student Representative

Note: Awards, Nominations, and Recognition Sub-committees also includes members of the Promotion Sub-committee.

Curricular/Research Group Representation on ECE Standing Committees

Computer Engineering
Oleh Tretiak – Undergraduate Affairs Committee, Planning & Development Committee
Harish Sethu – Graduate Affairs Committee
Alex Meystel – Planning & Development Committee, Graduate Affairs Committee
Constantine Katsinis – Faculty Recruitment Committee
Lazar Trachtenberg – Promotion & Recognition Committee

Controls, Robotics, and Intelligent Systems
Paul Kalata – Undergraduate Affairs Committee
Alex Meystel – Graduate Affairs Committee
Allon Guez – Planning & Development Committee
Moshe Kam – Faculty Recruitment Committee
Eli Fromm – Promotion & Recognition Committee

Electrophysics
Ed Gerber – Undergraduate Affairs Committee
Bahram Nabet – Graduate Affairs Committee
Peter Herczfeld – Planning & Development Committee
Peter Lewin – Faculty Recruitment Committee
Kambiz Pourrezaei – Promotion & Recognition Committee

Image/Signal Processing and Interpretation
Leon Hrebien – Undergraduate Affairs Committee
Enrollments and Curriculum

- Fall 2001 FT Freshman enrollment based on confirmed ECE students is expected to be 195 (54 EE and 141 CE), which constitutes 50.4% of the COE freshman with designated majors (and 42.8% of entire TDEC class, including Biomed and Environmental Engineering freshman). There are also approximately 132 engineering freshman with undeclared majors, and we expect approximately 56 of these students to eventually choose EE or CE as their majors, which translates to an effective ECE freshman class of 251 for Fall 2001. 72.3% of incoming ECE students are choosing CE versus EE. Provisional data indicates that there will be 56 new ECE graduate students in Fall 2001 compared to 37 last year, which is an increase of 51.3%. Again, provisional statistics reveal that ECE constitutes 50.1% of the new COE graduate student enrollments of 110.

- The following number of ECE degrees were granted at the June 2001 commencement (totals for the past four quarters, ending with Spring 2001): 76 BSEE, 29 BSCE, 25 MSEE, 8 MSEE/Telecommunications, 2 MSCE, 6 MSSE and 7 Ph.D. (including two non-EE Ph.D.s supervised by ECE faculty and two EE Ph.D.s not conferred due to incomplete paperwork) versus 104 BSEE, 19 BSCE, 51 MSEE, 8 MSEE/Telecommunications, and 5 Ph.D. in AY 1999-2000. This will be our smallest graduating class in recent times, reflecting the lowest point in our freshman enrollments, which occurred in the Fall of 1995. The size of the graduating ECE class is expected to increase in the coming years, reflecting the steady growth in our freshman class since 1995. Our BS graduating class received 3 offers on the average, with an average starting salary of $52,329 for EEs and $54,545 for CEs (salary range of job offers: $40-65 thousand).
• Dr. Mohana Shankar, along with Drs. Gregory Hislop from the College of IST and Spiros Mancoridis from the MCS Department, spearheaded the development of a proposal for a University-wide Bachelor’s of Science degree in Software Engineering. Dr. Raj Mutharasan merits special recognition for leading the initiative as interim Dean of Engineering. The B.S. in Software Engineering was approved at the College of Engineering faculty meeting on September 6, 2000 and subsequently approved by faculties of the College of Arts and Sciences and the College of Information Science and Technology. The SCAA unanimously approved the BS in Software Engineering on July 2, 2001. The full faculty Senate approved the degree program at its August 14, 2001 meeting. The BSSE degree will be offered by the ECE Department, MCS Department and the College of Information and Science and Technology. This will be the third BS degree offered by the ECE Department. The ECE Department will begin accepting entering freshman to this program effective immediately.

• The ECE Department continues to lead the College of Engineering, as well as the University, in implementing outcomes-based course assessment. This effort has been particularly critical in our preparations for the ABET accreditation visit scheduled for Fall 2001 under the new EC-2000 criteria, which requires outcomes based assessment. The COE Assessment Committee, co-chaired by Drs. Bilgutay and Scoles, piloted the new course assessment process on the Web across the COE for the first time in the Spring 1999 term. The assessment process established in the College of Engineering in AY 1999-2000 continued in AY 2000-2001 with focus on further institutionalization and refinement of the process. The surveys currently used were continuously improved and refined during the academic year and in the case of the Co-op employer survey revised significantly to incorporate outcomes based format as required by ABET. The revised survey was implemented for the first time with the Spring-Summer 2000 Co-op cycle. Similar revisions were implemented to improve the Co-op student survey and implemented for the first time in the Fall-Winter 2000-2001 cycle.

The Continuous Quality Improvement (CQI) process established in the COE in AY 1999-2000 was continued in AY 2000-2001. The process consisted of carefully reviewing the results of each survey conducted as well as other substantive feedback received (i.e., from faculty meetings, committee discussions, open discussion meetings/forums with students, etc.) to determine whether corrective actions and improvements are needed and taking the appropriate actions. We are also monitoring the impact of actions previously taken to determine whether these have resulted in the desired outcomes and whether any follow-up actions are needed. The CQI process involves feedback from all constituencies (students, faculty, alumni, industry and Advisory Council), and is a collaborative effort involving the Department Head, Assistant Department Head for Undergraduate Affairs, and the Undergraduate Curriculum Committee.

In AY 2000-2001, the COE undergraduate course survey participation rates approached 60% in the larger departments and 85% in smaller departments resulting in 40% overall participation rates. Although we have achieved significant and steady increase in the

22
participation rates since the first implementation of Web-based course surveys, we would like to continue to encourage our students to fully participate in this process.

The following are the currently used assessment instruments in the ECE Department:

- Course Surveys (Every Quarter)
- ABET A-K Survey (Fall & Spring Quarters)
- Co-op Student Survey (Fall & Winter Quarters)
- Co-op Employer Survey (Fall & Winter Quarters)
- Alumni Survey (Winter Term- 5th year from graduation)
- Senior Exit Survey (Spring Term prior to graduation)

**Other Feedback:**
- Departmental Curriculum Committee Feedback (Quarterly)
- Faculty Feedback (Faculty Response Form) (Quarterly)
- Open Forums with Undergraduates (Quarterly)
- Advisory Council Feedback (Twice a year in ECE)

**Two new fellowships have been established in the ECE Department during AY 2000-2001 to provide Ph.D. students in ECE with stipend and tuition support:** Colehower Fellowships are funded through the Colehower Scholarship Endowment. Adam O’Donnell BSEE’01 was the first student to receive Colehower Fellowship support. Koerner Fellowships have been established by Prof. Robert Koerner of Civil and Architectural Engineering, his wife Mrs. Pauline Koerner and their children Michael, George and Pauline. The funds generated from the endowed gift are expected to be between $75-100K annually and will be distributed equally between the five engineering departments to support Ph.D. candidates who are U.S. citizens. Arkady Kopansky was the first ECE Ph.D. student to receive the Koerner Fellowship. Both fellowships will be effective beginning Fall 2001.

**At the September 21, 2000, faculty meeting, Dr. Shankar successfully brought a motion to eliminate the preliminary examination of the doctoral program.** The new doctoral program requirements will include a revamped candidacy exam, which will be taken in year two (or year three in special cases).

**Senior Exit Forum was held on June 6, 2001 between graduating seniors and Drs. Nihat Bilgutay and Kevin Scoles.** This provides us the opportunity to get candid feedback from the graduating seniors about their educational experience at Drexel in general and the ECE department in particular. This year’s meeting was very lively with excellent constructive feedback from the students, whose comments were generally highly positive about their Drexel experience, particularly in the ECE Department. There is follow-up by the ECE administration to address the issues raised by the graduating students with the goal of continuously improving the educational and professional environment and services in the ECE Department.
• A new Electrical Engineering minor curriculum has been approved, which consists of a minimum of 8 ECE courses resulting in 26 credits. There are 5 required courses and an additional 12 credits of elective courses. The minor assumes that students will have a background in mathematics and physics equivalent to that covered in the first two years of the TDEC curriculum.

• Senior Design Retreat was held at the Faculty Club on June 12, 2001. The lunch meeting was led by Dr. Maja Bystrom, the ECE Senior Design Coordinator and Chair of the ECE Senior Design Committee. The meeting was held to review the results and impact of the new ECE senior design format implemented in AY 2000-2001 and to get faculty feedback and advice on ways to further improve the process. The ECE faculty members were in agreement that the new process vastly improved and enhanced the experience seniors gained from the program and supported the continuation of the new format. There was consensus that the process was highly professional and achieved much greater faculty and committee oversight in the evaluation and grading of the individual student and team performances. Each team’s formal project presentation and report was evaluated in the Fall-Winter and Spring terms by a faculty committee consisting of three members and the final grade was determined jointly by the faculty advisor and the review team.

ECE Ph.D. Degrees Completed in AY 2000-2001

Amro Anwar Seddick
Dissertation title: Heterodimensional Schottky Contacts to Modulation-Doped Heterojunction with Application to Photodetection
Supervising Professor: Bahram Nabet

Saffet Ayasun
Dissertation title: Singularity Analysis of Differential-Algebraic Power System Models
Supervising professor: Chika Nwankpa

Pinit Kumhom
Dissertation title: Design, Optimization, and Implementation of a Universal FFT Processor
Supervising professor: Prawat Nagvajara

Paul Lawrence Rawicz
Dissertation title: H-Infinity/H2 Kalman filtering of linear dynamical systems via variational techniques with applications to target tracking
Supervising professor: Paul Kalata
Mohammad-Reza Tofighi  
Dissertation title: Design and Implementation of a Two-Port Microstrip Test Fixture for Complex Permittivity Characterization and Near Field Imaging of Biological Materials up to 50 GH  
Supervising professor: Afshin Daryoush

Other Ph.D. Degrees Supervised by ECE Faculty and Completed in AY 2000-2001

Chuchart Pintavirooj  
Dissertation title: Invariant Curve/Surface Alignment in the Presence of Affine and Some Nonlinear Transformations with Application in Image Registrations  
School of Biomedical Engineering, Science and Health Systems  
Supervising Professor: Fernand Cohen

Jianming Yuan  
Dissertation title: Polymer Materials as Modified Optical Fiber Cladding for Chemical Sensors  
Materials Engineering Department  
Supervising Professor: Mahmoud El-Sherif

ECE Advisory Council

The Advisory Council meeting was held on September 11, 2000. The meeting was successful and productive. The main focus was on the Strategic Plan. The Advisory Council expressed the belief that student retention is very important, and one of their recommendations was that the department should make it a priority and include it among the Strategic Plan goals.

The Advisory Council met again on April 24, 2001. The meeting was very engaging and enthusiastic. Dr. Harvill Eaton, Dean Guceri, and Associate Dean Mun Choi attended and were quite impressed with the commitment and energy of the Advisory Council and their interest in the department and students.

Three new Advisory Council members were appointed during the 2000-2001 academic year:

David Bubnoski (BSEE’87) VP Engineering of Auto Image ID

Eli Sherman (BSEE’83) President of R. G. Vanderweil Engineers-Princeton, Inc.

Dominic Villecco (BSEE’85), President of V-COMM
Institutional Advancement Activities

• The Orthlip Foundation has submitted a $30,000 donation toward the $200,000 pledge for the establishment of the Harry F. Ortlip Systems Laboratory. A donation of $80,000 was received last year. The $30,000 received this year was used to obtain a $30,000 match from the COE Dean’s Office and $30,000 from the Pennsylvania Engineering School Equipment Program for a total of $90,000.

• Koerner Fellowships have been established by Prof. Robert Koerner of Civil and Architectural Engineering, his wife Mrs. Pauline Koerner and their children Michael, George and Pauline. The funds generated from the endowed gift are expected to be between $75-100K annually and will be distributed equally between the five engineering departments to support Ph.D. candidates who are U.S. citizens.

• The following list summarizes ECE related industry visits, meetings, and Institutional Advancement/fundraising efforts by the Department Head in AY 2000-2001:

<table>
<thead>
<tr>
<th>Date</th>
<th>Company</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 19, 2000</td>
<td>V-COMM</td>
<td>Dominic Villecco</td>
</tr>
<tr>
<td>October 4, 2000</td>
<td>Exxon/Mobil</td>
<td>Dick Brown</td>
</tr>
<tr>
<td>October 26, 2000</td>
<td>Alumni</td>
<td>Kevin Fallon</td>
</tr>
<tr>
<td>January 17, 2001</td>
<td>Commonwealth of PA</td>
<td>Duncan Campbell</td>
</tr>
<tr>
<td>May 29, 2001</td>
<td>Auto Image ID</td>
<td>David Bubnoski</td>
</tr>
<tr>
<td>June 18, 2001</td>
<td>Agilent</td>
<td>Andy Murphy</td>
</tr>
<tr>
<td>August 1, 2001</td>
<td>R. G. Vanderweil Eng.-Princeton</td>
<td>Eli Sherman</td>
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Facility/Laboratory Improvements

• The middle stage of the renovation on the second floor is near completion. This includes room 210-Ortlip Systems Lab, room 211-Senior Design Center, and room 212-Electric Tech Shop.

• Room 209 will become the Telecom Computer Lab, and current lab in 304 will be moved to that space.

• Rooms 202 and 203 will become the new computer engineering lab. Over the summer, the electronics shop has been moved to its new location and construction has begun, which should be completed during the Fall 2001 term.

• A professional conference phone system is available for meetings in rooms equipped with an analog line, such as rooms 410 and 516. The system can be signed out of the ECE office for use.
• The podium system in room 410 has been upgraded with the installation of both a Mac and PC and a latest model high-intensity projection system.

• Approximately, 10 faculty members will have their offices upgraded by the beginning of the new academic year in Fall 2001. In another year, all other offices will be completely upgraded.

• Facilities will be installing a cove base in the hallways.

• Facilities installed bulletin boards outside of faculty offices.

• The power group in rooms 211/212 has moved to the Power Lab, which made way for the Senior Design Center to be located in this space.

• Room 211, the Senior Design room is now available for use. There will be a card swipe, but there will not be any storage space. Storage bins will be available for the students to lease out from the IEEE Student Chapter.

• New space was acquired for the Power Lab from the Civil and Architectural Engineering (CAE) Department. Additional student offices and a seminar/multimedia room were installed in this space. The renovation cost was split between ECE, CAE, and the Provost.

• Faculty computers from the Provost were distributed in the middle of November 2000.

• Additional wireless network hubs were installed in Commonwealth and are now operational.

• The renovations of faculty offices will be completed during the summer. The office furniture has been ordered, and rooms 209 and 304 will also be renovated.

National Rankings

The September 11, 2000, issue of *U.S. News & World Report* ranked Drexel’s undergraduate engineering program 56th out of 101 programs nationwide. The ranking is down from last year’s 46th, but the overall score of 3.1 out of 5 points remained the same. The College of Engineering Ranking Committee was appointed, and Dr. Moshe Kam will chair the committee.

The U.S. News & World Report 2001 Best Graduate School ranking for the College of Engineering has jumped from 68 to 60.
Other Departmental News

- The American Society of Engineering Education (ASEE) and Agilent Technologies have created the Robert G. Quinn Award for Excellence in Engineering. ASEE will select a faculty member for excellence in engineering education beginning this year. The annual award will carry a cash prize of $5,000, and the ASEE Division for Laboratory Oriented Studies will select the recipient. Marsh Faber was the key person behind this effort at Agilent.

- Drs. Bilgutay and Scoles held an informal forum, known as an ECE Dialog, with the undergraduate students on October 17, 2000. The students voiced a few complaints that Drs. Bilgutay and Scoles were able to address. Overall, the students were very enthusiastic. They praised the recent lab renovations and offered their thoughts on new courses and improvements in the curriculum. The second ECE Dialog was held on November 14, 2000. Although only six students were in attendance, discussion was vibrant and engaged. Students expressed some concerns about the grading system and the undergraduate program national rankings. They again praised the lab renovations. February 1, 2001 ECE Dialog meetings were held regularly every term subsequently on April 25, 2001 (Spring 2001) and July 11, 2001 (Summer 2001). The student participation was 21 and 30 respectively in these meetings. Students continued to express continued and growing satisfaction with the ECE Department and the curriculum. Their concerns and complaints were noted and addressed each time and the results were reported to the students at the following meetings.

- Local high school students considering careers in science and engineering attended Drexel's College of Engineering Immersion Day held on December 18, 2000. The activities of the day provided the students with opportunities to gain hands-on experience in various engineering tasks. Dr. Scoles conducted a laboratory exercise that required students to build and test a binary counter. Meltem Izzetoglu, an ECE graduate student, also assisted the students as they completed this task.

- Dr. Alexander Meystel and Mrs. Marina Meystel became grandparents on October 10, 2000, with the birth of their grandson, Jacob Michael Meystel. Our congratulations to the proud parents, Michael and Robin, and also to the grandparents, Alex and Marina!

- Dr. Eli Fromm and Mrs. Dorothy Fromm became grandparents on October 23, 2000, with the birth of their grandson, David Henry Fromm. Our congratulations to the proud parents, Stephen and Laura, and also to the grandparents, Eli and Dorothy!

- Dr. Lazar and Mrs. Tania Trachtenberg became grandparents on November 7, 2000, with the birth of their first grandson, Binjamin Tsvi. Our congratulations to the proud parents, Ari and Felicia, and also to the grandparents, Lazar and Tania!

- Gertrude Grafenstein, known to many of us as Gert, passed away on New Year’s Eve, just a day short of her 86th birthday. She was a friend, mentor, and supporter to many
faculty members and students for the past two decades at Biomed until her retirement in 1995. She was also a favorite of many children of faculty and staff. Gert will be greatly missed and Biomed will not be the same without her.

- Ms. Sandy Burgess passed away on April 11, 2001. Ms. Burgess was only 34 years old when she succumbed to cancer. Ms. Burgess was an ECE graduate secretary for many years before moving to Biomed, and she will be greatly missed by all who knew her. Her funeral was on April 19, 2001, and a number of our faculty attended the funeral. Her family was very grateful for the outpouring of genuine sympathy from the ECE and Biomed faculty and staff.

- Drexel’s success in increasing student membership in IEEE was highlighted in the IEEE publication, *The Institute* (May 2001).

- The ABET Electrical and Computer Engineering Self Study reports were delivered to the ABET review committee in Baltimore on July 2, 2001. The ABET visit is scheduled for November 11-14, 2001, and it will be a topic for the upcoming Fall Faculty Retreat.

- The ECE department produced a number of publications during AY 2000-01. The ECE Brochure was published in the fall of 2000, and it features the ECE faculty members and their research accomplishments. The ECE Strategic Plan 2000-2005 was also published in the winter of 2001. The second annual *ECEngineer* newsletter was published in the spring of 2001.

### ECE Social Events in AY 2000-2001

- ECE Graduate Student Reception (September 28, 2000)
- Nano-technology Reception (October 18, 2000).
- ECE Department Annual Holiday Dinner (Fez Moroccan; December 10, 2000).
- ECE Department International Holiday Party (December 14, 2000).
- End of the Academic Year Faculty Meeting and Lunch was held on May 22, 2001.
- Senior Design Party for students and faculty was held on May 23, 2001.
- Pizza Lunch with faculty and graduating ECE students was held on May 30, 2001.
- Eta Kappa Nu Annual Faculty Roast (Cavanaugh’s; June 1, 2001). The major awards given: “Senior Design Empress” to Dr. Maja Bystrom and the “Best Teacher Award” to Dr. Harish Sethu.
Challenges and Goals for the ECE Department in AY 2001-2002

Hiring competitive faculty in areas of great demand both in academia and industry, such as computer engineering, nanotechnology and MEMS continues to be the top priority for the ECE Department. These areas are expanding dramatically, both at Drexel and across the nation. We need to continue building our department and strengthening the critical curricular and research areas that are rapidly growing, particularly in computer engineering, nanotechnology, networking and telecommunications. In order to meet the challenges and maximize the vast opportunities available to us, the ECE Department must continue hiring and developing research facilities in these critical areas. We believe our department has an excellent opportunity to increase its national and international visibility and to raise its rankings to even greater heights through sustained growth and continued excellence in teaching, research, and professional service. The new ECE Strategic Plan for 2000-05 focuses on achieving these key goals.

Our key goals are to:

• Provide a strong supportive environment for our new and established faculty alike and to facilitate their continuous professional development and success. We must strive to develop and maintain state-of-the-art facilities combined with academic, research, and general administrative support to ensure that our faculty members have the means to successfully compete for external funding opportunities and to reach their professional potential in both teaching and research.

• Continue the development of the “Center for Telecommunications and Information Networking” under the leadership of Dr. Stewart Personick. This is essential to guarantee the success of the Center as a nationally recognized laboratory. We will also target the development of other major research centers in the ECE Department to reflect existing and emerging strengths of the department, such as in Nanotechnology, Microwave-Lightwave Engineering, Electric Power Engineering, and Imaging and Computer Vision.

• Maintain and further strengthen the close ties that have been established with the newly reconstituted ECE Advisory Council through regular council meetings and communications with individual members. As we enter a rapid growth period where enrollments, faculty size, and research activity will continue to expand, the
role of the ECE Advisory Council will be increasingly critical in providing us with guidance, feedback, and assistance to reach our full potential. The close ties established with the ECE Advisory Council have been very helpful in creating the new ECE Strategic Plan because we have had the full and active participation of the council members.

- The graduate and research programs have seen significant decline during the period of shrinking faculty size in the early ’90s. Although the decline in undergraduate enrollments have now been reversed dramatically by significant increases in freshman enrollments during the past three years (particularly with increasing enrollments in Computer Engineering), the same trend has not occurred in graduate enrollments. The ECE faculty feels it is time to concentrate similar efforts on rebuilding the graduate enrollments and research grant activity.

- Continue to strengthen the newly established MS programs in Telecommunications Engineering, Software Engineering, and Computer Engineering.

- The newly established MS degree program in Computer Engineering will be the key to increasing graduate enrollments and strengthening the research and graduate programs of the ECE Department. The new BS Computer Engineering program has been received with great enthusiasm on the part of our undergraduates. The recently approved MS degree program in Computer Engineering will complement this effort and provide our department with greater opportunity and national visibility. We will take advantage of the tremendous demand for computer engineers to build and strengthen our undergraduate and graduate programs in computer engineering and to recruit faculty in this area commensurate with the growth we are experiencing. The newly approved BS in Software Engineering will provide additional opportunities and diversity for our students and faculty.

- Continue the aggressive and pro-active student recruitment at the undergraduate level with a focus on improving the student quality rather than increasing the class size. The overall student quality and level of preparation is a growing concern, and the ECE faculty would like to see a careful and serious examination of the underlying causes and the development of effective responses to this situation.

- Renovation of Commonwealth Hall and the construction of the new Research Enterprise Building is seen as a positive development that will provide the ECE Department with much needed and long awaited resources to address a longstanding need in facility improvement.

- Concentrate on fundraising for sustained “quality of life” improvements for the faculty and students and for the enrichment of the educational programs and facilities in ECE.
• Enhance and expand the off-campus programs by using the latest educational technologies available to us with the support of the University. Proactively aim to create new opportunities through Web-based delivery modes to all our students, both PT and FT. This is an area that is rapidly developing and growing, and we must make every effort to be an active player on the national scene.

• Over the past several years, we have made great strides in developing an ABET 2000 outcomes-based assessment process and instruments. We have established an outcomes-based course assessment, ABET (a-k) Survey, and the Senior Exit Survey, all implemented via the Web and across the COE. We have also worked with the Institutional Research Office to revise the Co-op Surveys and the Alumni Survey, which now reflect the new ABET requirements. These efforts must continue to grow subsequent to the ABET visit scheduled for November 11-14, 2001, with particular focus on the Continuous Quality Improvement (CQI) aspects of the recently established Web-based assessment process.
Appendix A: ECE Department FY 2000-2001 Research Awards

Bilgutay, Nihat $496,500
Link-to-Learn: Intelligent Systems and Applications
Pennsylvania Department of Education
(Joint Grant w/ School of Education, Fredrica Reisman, Co-PI)

Bilgutay, Nihat $94,217
Ultrasonic Tissue Characterization Project #3
National Institutes of Health

Bilgutay, Nihat $81,471
(Sub-contract to K. Donohue, Univ. of Kentucky)
Ultrasonic Tissue Characterization Project #8
National Institutes of Health

Cohen, Fernand $68,284
Ultrasonic Tissue Characterization Project #2
National Institutes of Health

Daryoush, Afshin $140,000
Engineering Support for Development of a High Performance Network for Satellites
Rydal Research & Development

Fromm, Eli $2,500,000
Gateway Engineering Education Coalition
National Science Foundation

Herczfeld, Peter $1,200,972
Hybrid Fiber Optic/ Wireless System for High Capacity Military Communications
Office of Naval Research

Hrebien, Leonid $483,972
Alliance for Data Analysis
SmithKline Beecham

Miu, Karen $70,425
Definition of Hardware/ Software Interface for Small- Scale Machinery R&D
Office of Naval Research

Miu, Karen $228,000
Development of A Simulation- Stimulation Interface for a Small- Scale Electric
Shipboard Power System Laboratory
F & H Applied Science Associates
Miu, Karen  $330,000
Multi- Frequency Analysis of Large- Scale Systems
Office of Naval Research

Personick, Stewart  $469,230
Applied Communications and Information Networking (ACIN) Program-Phase 1
U.S. Department of Defense

Personick, Stewart  $1,999,123
(Athina Petropulu & Harish Sethu - ACIN Project PIs)
Applied Communications and Information Networking (ACIN) Program-Phase 2
U.S. Department of Defense

Petropulu, Athina  $64,250
Ultrasonic Tissue Characterization Project #5
National Institutes of Health

Pourrezzaei, Kambiz  $1,250,000
Nanotechnology
Ben Franklin Technology Center

Pourrezzai, Kambiz  $1,083,184
Functional Optical Images
Office of Naval Research

Rosen, Warren  $100,000
Application of Lightweight Protocols to High- Performance Computing
National Security Agency

Rosen, Warren  $120,000
Engineering Support for Development of a High Speed Optical Link for Advanced
Avionics Data Network
GEMS, Inc

Shankar, P  $98,137
Ultrasonic Tissue Characterization Project #4
National Institutes of Health

Shankar, P  $73,856
Estimation of Tumor Angiogenesis with Contrast Enhanced Subharmonic Imaging
Thomas Jefferson University

Grand Total:  $10,951,621$
Electrical & Computer Engineering Total: $10,951,621*

College of Engineering Total: $22,112,251*
Drexel University Total: $51,663,202

* includes $3,371,212 in ECE faculty awards listed outside ECE/COE (i.e., $2,468,353 for ACIN Phase I and II listed under Office of Research) and joint grants with other units (i.e., $902,859).

Appendix B: ECE Department FY 2000-2001 Research Expenditures

Electrical & Computer Engineering Total: $8,351,565*
College of Engineering Total: $13,555,204
Drexel University Total: $28,346,201

* includes $2,811,552 in ECE faculty expenditures listed outside ECE (i.e., $2,189,222 for NSF Gateway) and expenditures for joint grants with other units (i.e., $622,330).