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April 24  Fourth-Year Garden Party
          Garden Eight

April 25–26 Spring Board Meeting
          Zehmer Hall

May 1     Undergraduate Research Design Symposium
          Rotunda

May 13    Retiring Faculty Reception
          Thornton Hall

May 14    TJ Society Reunion Luncheon
          Alumni Hall

May 18    Final Exercises
          Darden Court

June 6–8  Reunions Weekend
          ('58, '63, '68, '73, '78, '83, '88, '93, '98)

June 7    Engineering Reunion Luncheon
          Darden Court

Call 434.924.1382 for information.
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Virginia Engineering Foundation

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Send us your news at vef-info@virginia.edu, 434.924.3045, or fill out our online contact form at www.seas.virginia.edu/vef/contact.html

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Engineering Students and Policy-Makers: A Mix That Works/9
Engineering students spent the summer on Capitol Hill learning about national science policy-making.

Solar House Team Shines on the Mall/12
A team of engineering and architecture students built a solar house and took second place in the Department of Energy’s Solar Decathlon.

U.Va. Engineering Study Aims to End Ambulance Diversions at Hospitals/14
Graduate students in the Systems Engineering Department’s Executive Master’s Degree Program study ambulance diversion in the Richmond area.

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Front cover photo by Daniel Grogan.
Natalie Giannelli, Erica Kohn, Brian Fox, Sarah Fischer, Korina Kalopaidiotou, Joseph Gay, Edward Hallen, Ryan Ewalt, Ryan Murphy in front of the U.S. Supreme Court in Washington, D.C.
Biomedical Engineering

George T. Gillies (BME and MAE) co-authored an article in the Institute of Physics Nanotechnology journal titled “Positive Pressure Infusion of Fluorescent Nanoparticles as Probe of the Structure of Brain Phantom Gelatins.”

Yuqing Huo received the Young Investigator Award from the American Physiological Society.

Klaus F. Ley, in collaboration with Scott T. Acton (ECE), received a $1 million grant from NIH to develop a system to track white blood cell velocity as part of Ley’s research on the manner in which white blood cells cause inflammation. Ley received an award from NIH for his research titled “Monocyte Adhesion to Atheroma in Gene-Targeted Mice.”

Chemical Engineering

Giorgio Carta was named a Fellow of the American Institute of Medical and Biological Engineering.


Andrew C. Hillier was named winner of the 2002 Charles N. Reilley Young Investigator Award from the Society of Electroanalytical Chemistry and presented the invited award lecture at Pittcon 2002.

Donald J. Kirwan was named a Fellow of the American Institute of Medical and Biological Engineering.

Matt Neurock is co-inventor on a patent application for “A Knowledge-Based Process for the Development of Materials.”

James P. Oberhauser received an NSF Career Award.

Civil Engineering

Cornelius O. Horgan presented an invited lecture at the U.S. National Congress on Theoretical and Applied Mechanics, in Blacksburg, Va., in June.

Computer Science

Jack W. Davidson gave a tutorial on building compiler infrastructure at the ACM SIGPLAN Conference on Programming Language Design and Implementation in Berlin, Germany, in June. He served as general chair (with Kevin Skadron) of the International Conference on Parallel Architectures and Compilation Techniques (PACT 2002), held in Charlottesville in September. He is also on the editorial board of a special issue of SIGPLAN Notices that will select and republish the most influential papers in compiler design and implementation that have appeared over the past 20 years.

Jorg Liebeherr was the co-chair of the 10th International Workshop on Quality of Service, held in May. He was co-organizer of the ACM Sigcomm Workshop on Computer Networking: Curriculum Designs and Educational Challenges, held in August, and was elected to the Board of Governors of the IEEE Communications Society for a three-year term beginning in January 2003.

Kevin Skadron and Mircea R. Stan (ECE) were awarded a U.Va. FEST Excellence Award to create the Center for Temperature-Aware and Power-Aware Systems (TAPAS).

John A. “Jack” Stankovic was elected to the Computing Research Association Board of Directors as treasurer.

William A. Wulf received the University of Pennsylvania Medal for Distinguished Service.

Electrical and Computer Engineering

Scott T. Acton is collaborating with Klaus F. Ley (BME) on a $1 million grant from NIH to develop a system to track white blood cell velocity.

Michael L. Reed and Whye-Kei Lye established Setagon Inc., a medical device company that builds micro-intravascular delivery systems for localized delivery of drugs.

Mircea R. Stan and Kevin Skadron (CS) were awarded a U.Va. FEST Excellence Award to create TAPAS.

Nathan S. Swami represented the Initiative for Nanotechnology in Virginia at a U.S. Senate subcommittee hearing on nanotechnology to testify on the inclusion of regional nanotechnology initiatives into current national efforts.

Gang Tao is an associate editor for Automatica, the International Federation of Automatic Control journal. He co-edited the book: “Adaptive Control of Nonsmooth Dynamic Systems.”

Stephen G. Wilson has been elected to the executive council of the U.Va. Faculty Senate. He was
awarded the Harold Morton Teaching Award.

Materials Science and Engineering

Raul Baragiola was an invited professor at the University of Calabria, Italy, in June. He was also an invited speaker at the International Workshop on Swift Heavy Ions in Matter, held in Catania, Italy; and at the Werner Brandt Workshop in Namur, Belgium. In June, he was named the Alice and Guy A. Wilson Professor of Engineering.

George L. Cahen Jr. was awarded the Harold Morton Teaching Award.


Robert Hull was named the Charles Henderson Professor of Engineering. He joined the Defense Sciences Research Council, an advisory council to DARPA. He also participated in an international panel reviewing the status of materials research in the United Kingdom.

Robert G. Kelly and John R. Scully’s book “Electrochemical Techniques in Corrosion Engineering” was published by Marcel Dekker. It was co-authored with Rudy Buchheit (MSE ’91), who is now an associate professor at Ohio State University, and David Shoesmith of the University of Western Ontario. Kelly gave a talk at the 2002 Gordon Conference on Corrosion in July and at the U.S. Naval Academy in February.

I AM DELIGHTED TO HAVE THIS OPPORTUNITY TO SHARE with you some of the exciting activities in our school today. We have many reasons to be proud of the important work we do here.

We take pride in our excellent faculty, who educate the technology leaders of tomorrow and who are at the forefront of research in their fields. We take pride in our students, who exemplify the potential and excellence of a Virginia engineer. And we take pride in our alumni, who carry forth in their professional and personal lives the embodiment of what we seek to achieve here.

Within the pages of this magazine we can cover only a sampling of the work of our faculty and students. Highlights include our selection as one of six universities chosen to be a founding member of the National Institute of Aerospace (NIA) at NASA’s Langley Research Center. We were also one of eight institutions chosen to participate in the NSF Middleware Initiative’s coordinated effort to deploy and evaluate emerging technologies that will link otherwise unconnected applications or services across the Internet.

Interdepartmental faculty collaborations have been rewarded with lucrative grants from NASA and NIH, among others. Joanne Bechta Dugan, electrical and computer engineering, and Kevin Sullivan, computer science, received a $1.6 million grant from NASA. The project puts our school in a leadership role as a partner with NASA headquarters on the implementation of probabilistic risk assessment and failure management methods for complex systems, including the International Space Station. Klaus Ley, biomedical engineering, and Scott Acton, electrical and computer engineering, received a $1 million grant from NIH in support of blood cell velocity research. Kevin Skadron, computer science, and Mircea Stan, electrical and computer engineering, received a U.Va. FEST Excellence Award to create the Center for Temperature-Aware and Power-Aware Systems (TAPAS). All of these are significant achievements in a highly competitive research arena.

Our students are also a source of pride. Our solar house team, an audacious and brilliant group of students from engineering and architecture, designed and built a solar-powered house that won first place in the design and livability portion of the Solar Decathlon and won second place in the overall competition. The second year of our D.C. internship program was a great success, with nine intern placements that included Senate offices, the White House Office of Science and Technology Policy, the National Research Council, the National Science Foundation and other agencies. You’ll read more about the program and the interns’ experiences in the pages that follow.

Overall, these are exciting and promising times. We have excellent faculty and inspired students. We have challenging work to do and we do it well. We will continue to prosper, thanks to our shared dedication to our mission — to achieve international prominence as a student-focused school that educates men and woman to be leaders in technology and society.

Thank you for everything you do that helps us to continue this tradition.

—DEAN RICHARD MIKSAD
Robert E. Johnson received a Gledden Senior Fellowship from Australia to work at the University of Western Australia on irradiation effects on the surfaces of the moons of Jupiter and Saturn.

John R. Scully has been elected a Fellow of NACE International, the leading professional society for corrosion.

Mechanical and Aerospace Engineering

J. Taylor Beard presented short courses on “Municipal Waste Combustion Operator Training” in Detroit and Wilmington, N.C. He also organized and presented a five-day short course in January, sponsored by the Georgia Division of Natural Resources in Atlanta.

Jeff R. Crandall gave a lecture at the European Society of Biomechanics meeting, held in Poland in September.

Joseph A. C. “Pepe” Humphrey presented an invited lecture at Virginia Polytechnic Institute in April and at the University of Vienna in October. He and Hossein Haj-Hariri received an award from the Information Storage Industry Consortium for research on flow-induced track misregistration of magnetic heads in disk drives.

Ted Iwasaki is the PI on an NIH/NINDS-funded project in modeling of the neuronal control mechanism in animal locomotion. He is working with W.O. Friesen (Biology). He presented an invited lecture at the University of Minnesota in April and at the World Congress of the International Federation of Automatic Control, held in Spain in July.

Richard W. Kent gave an invited lecture at the “Biomechanics of Trauma: Understanding the Limits of Human Tolerance” course sponsored by the Association for the Advancement of Automotive Medicine and the University of Pennsylvania School of Medicine. He presented a paper at the association’s annual scientific conference in October.

Pamela M. Norris gave a paper at the 12th International Conference on Photoacoustic and Photothermal Phenomena, held in Toronto in June.

Timothy C. Scott attended the 12th annual Jefferson Banquet in the Rotunda, sponsored by the 7 Society in March. The banquet is based on the Jefferson tradition of hosting dinners to promote communication and comradeship among exceptional members of the faculty. Seven faculty members and 40 students were selected.

Pradip N. Sheth received a research grant from Newport News Shipbuilding for development of advanced material-handling systems for aircraft carrier applications. Ronald Williams (ECE) is co-PI. Sheth is also part of a team of faculty that received an NSF grant for the “Interface Design for a Shared Control Mobility Aid for the Elderly.” The project will focus on the development of a shared control environment for human-operated mobility aids.

Houston G. Wood III and Dr. Xinwei Song each presented papers at the 10th Congress of the International Society for Rotary Blood Pumps, held in Japan in September.

Systems and Information Engineering

Donald E. Brown received the Norbert Wiener Award from the IEEE-Systems, Man and Cybernetics Association. He received the Outstanding Teacher Award from the student chapter of the International Council on Systems Engineering at U.Va.

James H. Lambert attended the “Scientists Helping America” conference hosted by the U.S. Special Operations Command, DARPA, and the Naval Research Laboratory in Washington, D.C., in March.

Division of Technology, Culture & Communication

W. Bernard Carlson served as 2002 program chair for the Liberal Education Division of the American Society for Engineering Education.

Deborah G. Johnson received an NSF grant to research new directions in the connections between ethics and technology.

Kathryn A. Neeley’s book “Mary Somerville: Science, Illumination, and the Female Mind” was published in October 2001. She did an interview related to the book for the BBC Radio 4 program “Woman’s Hour.”
The University of Virginia is one of eight institutions chosen to participate in a closely coordinated effort to deploy and evaluate emerging technologies that will link otherwise unconnected applications or services across the Internet. The NSF Middleware Initiative (NMI) is developing these technologies, as well as the practical deployment and evaluation program NMI Integration Testbed, as part of NMI’s overall effort to develop and disseminate software that allows scientists and educators to share applications, scientific instruments and data across the Internet.

Universities in the NMI Integration Testbed were selected competitively based on each institution’s readiness for immediate testing of NMI releases and the potential for future project and enterprise integration activities.

Marty Humphrey (CS) is the project’s PI.

Art on Display in MEC 205

MEC 205 was decorated with engineering art this summer, in an ongoing effort to display cultural works on engineering over the last century. The prints were selected from pieces NASA commissioned over the years to record significant events in space flight. Artists include Norman Rockwell, Andy Warhol and Jamie Wyeth. Emily Smith (Col ’02) was curator.

Send Us Your Thoughts

Was there a professor who you thought was special while you were in school here? Was there a class you took that changed the course of your life? Write us at vef-info@virginia.edu to tell us your stories and send photos if you have some to share. We’ll feature these stories in an upcoming issue of the magazine.
Monitoring Device Offers Data on Bridges’ Structural Health

Robert Kelly (MSE) was co-inventor of a device to provide information on the structural health of bridges. He invented the monitoring system with Robert Ross, president, and Kurt Hudson of Virginia Technologies Inc. of Charlottesville.

Graduate Fellowships Established

The Engineering School will be better able to attract more of the country’s best graduate students, thanks to recent gifts totaling $200,000 that will be used to endow two new graduate student fellowships.

“Other great universities offer outstanding graduate student fellowships. In order to compete, we must, too,” said Dean Richard Miksad. “Support for graduate research is one of our top funding priorities.”

The endowed fellowships were established through a $100,000 unrestricted gift from the estate of John Bell McGaughy and through $100,000 in funds given by Engineering School alumni.

IBM Gift Granted to the Schools of Engineering and Medicine

An IBM gift of computer technology has been granted to the schools of Engineering and Medicine, with key applications in biomedical engineering for medical imaging. The value of the IBM and U.Va. matching gift totals $1.5 million.

The grant will allow the schools to collaborate on cardiac and ultrasound imaging, including MRI applications for the beating heart in real-time, world-class ultrasound imaging, optical imaging of the living cell interior and computational bioengineering of data to understand disease progression.

U.Va. Engineering Student’s Invention Improves Allergic Response Options

Evan Edwards, a fourth-year MAE student, has invented the Epi-Card, a small device that will inject a dose of epinephrine through an easy-to-use, credit-card-sized device that is small enough to fit in a wallet. It also will contain a spring device to retract the needle after use, a safety precaution no other injection system offers.

Edwards’ invention was featured at the Smithsonian Museum of American History in Washington, D.C., as part of “March Madness of the Mind,” the National Collegiate Inventors and Innovators Alliance’s (NCIIA) fifth annual exhibition of student inventions.

Edwards first conceived of the Epi-Card idea in the spring of 2000, in a Technology, Culture and Communications course on invention and design.

After graduating this May, Edwards plans to further develop his invention while pursuing a master’s degree in technology and ethics at U.Va.

Center Designs Cars of the Future

Research done by the Center for Applied Biomechanics was referenced in the British Medical Journal article “Future Cars May Protect Pedestrians.” The article discussed plans to design future cars that will offer greater safety to pedestrians and cyclists in accidents. Information on research conducted in the center can be seen at http://auto-safety.mech.virginia.edu/.

The center recently received the gift of a minivan from Toyota to facilitate injury biomechanics research and study. Toyota also is funding a project with the center to examine the impact injury tolerance of the elderly torso in an effort to improve design of vehicle restraints.

Faculty Design a Government Portal for Hampton

The Computer Science Department recently completed a cooperative project with CNU to design and build an electronic portal for the city of Hampton. The project created a customer response system to improve citizen interaction with local government.

Professors Win NASA Research Award

Professors Kevin Sullivan (CS) and Joanne Bechta Dugan (ECE) received a two-year award of $1.6 million from NASA Langley, with
options bringing the total to $2.6 million for five years. The award will fund the next stage of a recently completed first-stage project (funded at $750,000). NASA’s aim is to transition innovative techniques for reliability modeling and analysis of complex systems for use by NASA engineers. The funding for this work will enable the two departments to support eight graduate students, several undergraduate researchers, a professional software developer and two faculty members at U.Va., as well as subcontracts with the University of Maryland, the Idaho National Engineering and Environmental Laboratory, and the College of William and Mary.

The project puts U.Va. at the forefront of research and development on techniques for the construction of sophisticated software tools for engineering modeling and analysis and in a leadership role as a partner with NASA headquarters on the implementation of probabilistic risk assessment and failure management methods for complex systems, including the International Space Station.

Faculty and Graduate Students Win Laptop Computers

The Engineering School gave away four wireless-enabled IBM laptop computers to winners of a school-wide competition open to faculty and students. Proposals were reviewed by the Engineering School Computing Environment Committee. Winners were faculty members Sean Agnew (MSE), Maite Brandt-Pearce (ECE) and Mircea Stan (ECE), and graduate student Tian He (CS). IBM donated the computers, and the Engineering School, ITC and the University Library provided the peripherals.

Center for Biomechanics on Discovery

The research activities of the Mechanical and Aerospace Engineering Center for Applied Biomechanics were featured on the Discovery Channel documentary “Anatomy of a Crash,” which aired in September.

VEF Awards — 2002

Distinguished Faculty Award
Professor Nicholas Garber has been a faculty member in Civil Engineering since 1980. He is nationally and internationally known for his research in traffic operations and safety. He served as chair of the Equal Opportunity/Affirmative Action Committee and was a member of the University Faculty Senate.

Outstanding Student Award
Ginger Moored was a member of the solar airship team, an engineering school adviser, a member of Student Council and a participant in the D.C. Internship Program. She was a member of the Organization of Young Filipino-Americans and co-founder of GEMS, a mentoring organization for middle school girls. She was a member of the Women’s Rights Committee of the American Civil Liberties Union and was elected to Tau Beta Pi, Golden Key, Omicron Delta Kappa, Sigma Gamma Tau and the National Society for Collegiate Scholars.

Service Award
James Turner is chief Democratic counsel on the U.S. House of Representatives Committee on Science. He is on the Dean’s Advisory Council and the Advisory Board of TCC and has been instrumental in setting up and organizing the D.C. Internship Program.

ROTC Awards
Army Cadet Bryan Paladini
Navy Midshipman Jared Simsic
Air Force Cadet William Warren

Engineering and Curry Students Create Teaching Kits

The Virginia Middle School Engineering Education Initiative (VMSEEI) has received an NSF Planning Grant from the Bridges for Engineering Education Program. The one-year, $100,000 grant and VMSEEI program involves faculty and students from the Engineering School and the Curry School of Education. The Department of Mechanical and Aerospace Engineering also has initiated a new senior design course focused on developing Engineering Teaching Kits (ETKs). Larry Richards and Hilary Bart-Smith are the main instructors, and 24 students are enrolled. Five teams under the supervision of Richards, Bart-Smith, Gaby Laufer and Pepe Humphrey are working on ETKs on the topics: solar car design, design for sustainability, simple machines, gels and brain perfusion, and the Manta Ray submersible vehicle.

VMSEEI began several years ago with a grant from the Payne Family Foundation and Accenture, among others.
Student News


Matt Green, a graduate CE student, was awarded a prestigious Eisenhower Fellowship by the U.S. Department of Transportation. Matt is conducting his research in the Smart Travel Laboratory with Professor Brian Smith.

Landon Shoop, a second-year student, was featured in a June Washington Post article as one of about 80 young volunteers with Arlington, Va.’s, CyberSeniors/Cyberteens Program. The program pairs teenagers and young adults with senior citizens to teach them basic computer skills and help them feel comfortable using technology.

Elizabeth Partridge won third place in the ACM Undergraduate Student Research Contest.


Thirteen students attended the American Institute for Aeronautics and Astronautics (AIAA) student conference in April. Erik Andrews, fourth-year Aero, won first place; and Zach Owen, fourth-year Aero, won second place in the undergraduate competition for papers they wrote. Phil Lemire, a master’s student in MAE, won second place for his paper. Last year, Lemire won third place, and his research has been applied to research on artificial heart pumps.

A student team placed fourth in the 2002 IEEE Computer Society International Design Competition (CSIDC). U.Va. was the top-placed U.S. team. The project title was “Lifeline: Improved Communication & Informatics for Fire & Rescue Workers.” Team members were Daniel Ceperley (EE), Minh Duc Nguyen (CS), Andrew Perez-Lopez (Cognitive Science) and Arun Thomas (CpE). Faculty mentors were Mircea R. Stan and Ronald D. Williams.

A team of engineering students was among the top four winners in the NASA Means Business competition in May. The students competed against other schools to develop a business plan for customer outreach for NASA’s Mars missions over the next 20 years.

Kelly Shea, a second-year ChE student, designed a 10-minute prostate cancer test. She was a finalist last year in the Siemens Westinghouse Competition in Math, Science and Technology. Kelly recently was featured in a Washington Post Magazine article headlined: “Laboratory Protocol: Science Discovers Women, and Vice Versa.”

MAE students took first place in the NASA National General Aviation Design Competition for their design of “Alaris,” an aircraft concept that produced outstanding performance by combining a lightweight wing and body with a powerful turbofan engine. The U.Va. team’s design was featured in the October issue of Popular Science. For images of this year’s winning designs, visit: http://oea.larc.nasa.gov/news_rels/2002/images/designcomp.html.

Kelly Shea, 2nd year ChE

Emily Quann, Suzanne Groves, Daniel Ceperley: winners of the 2002 Undergraduate Research and Design Symposium.

15th Annual Undergraduate Research and Design Symposium Top Three Winners

First Place — Suzanne Groves (MAE)
Developing Wavelet-Based Diagnostics for Analyzing Transient Roll Motion of Ships
Technical Adviser: Don Jordan
TCC Adviser: Helen Benet-Goodman

Second Place — Emily Quann (ChE)
Functional Analysis of Protein Kinase C Isotypes During Differentiation from Mouse Embryonic Stem Cells into Cardiomyocytes
Technical Adviser: Roseanne Ford
TCC Adviser: Ingrid Townsend

Third Place — Daniel Ceperley (ECE)
Adaptive Beam-Forming in Medical Imaging
Technical Adviser: Seth Silverstein
TCC Adviser: Bryan Pfaffenerberger
Engineering Students and Policy-Makers: A Mix That Works

by Josephine Pipkin

WHAT DO YOU GET WHEN YOU MIX BRIGHT, articulate, technically astute young people with policy-making officials on Capitol Hill?

Success, success, success.

“We’re in the business of educating the technology leaders of tomorrow,” said Dean Richard Miksad. “What better way to do that is there than to expose them to the seat of power in this country?”

Miksad knew there would be benefits for the policy-makers as well. “On visits to D.C., I would talk to staff aides who were well-trained in political science but who didn’t understand what we were talking about in terms of technology,” Miksad said. “Our goal with this internship was to raise the level of technology literacy in the national science policy-making process and to put our students in a situation where they could see exactly how that process works.”

During the summer of 2002, nine Engineering School interns were placed in policy-making offices with the help of James Turner, a member of the Dean’s Advisory Council and Democratic counsel for the House Science Committee. Turner worked with Miksad to launch the program, based on a similar program Turner established for MIT five years ago. He assisted students in setting up placement interviews, set up a housing arrangement that paired them with MIT students and arranged lectures and tours to enhance their internship experience. Scott Giles, the Republican counsel for the House Science Committee, also helped.
The interns were undergraduate students, selected from a competitive group of applicants. Once selected, they were responsible for securing their own placements. In addition, each intern signed up for TCC 395.

“This TCC class teaches students how to function effectively as engineers in a larger context,” said Kay Neeley, faculty coordinator for the D.C. Internship Program. “They learn how to communicate effectively with non-technological people; they learn about the social, cultural and historical context of engineering; and they learn about engineering ethics by exploring questions of values, risks, benefits and harm.”

Interns secured placements in high-level government agencies. They worked in the offices of U.S. Sens. Hillary Clinton and George Allen and with U.S. Rep. Rosa DeLauro. They worked with the Information Technology Industry Council, the National Academy of Engineering, the National Science Foundation and with the White House Office of Science and Technology Policy.

They worked on real projects. They were of use. And they are fundamentally changed by the experiences they had.

Natalie Giannelli worked in Clinton’s office. “This internship swept me into a world of possibility where it was no longer about individual goals, but instead about working for the nation’s greater good,” said Giannelli. “I think it was the best thing to happen to me as a student here.”

Ryan Ewalt and Ryan Murphy interned in separate divisions in the White House Office of Science and Technology Policy. The students are friends and had ample opportunity to compare notes outside their respective offices. Ewalt was placed in the technology division. “Technology is an issue of which alternative to choose, why and when. Political considerations were significant there,” Ewalt reported. Murphy worked in the science division and found that politics had more of an effect on what was investigated than on what the outcome of the investigation would be. “My eyes were opened to the world of policy-making this summer,” he said. “Priorities in the science division were constantly shifting, depending on what was under the public spotlight.”

Antonia Tolson worked as an assistant to DeLauro, the second-highest-ranking woman in the House Democratic leadership. “I learned quickly how Washington works and the dedication, perseverance and skill it takes to be influential in legislation and policy-making,” she said.

For Ed Hallen, who interned with the Information Technology Industry Council, the importance of technical training for those in national policy-making positions was abundantly clear. “A lack of engineers in the policy-making process leads to policy that is heavily influenced by the wishes of companies and interest groups,” he said. “Without a technology background you can’t research, present the facts and create effective policy.”

Erica Kohr spent her internship months at the National Science Foundation working with Dr. Norman Fortenberry, director of the Division of
Undergraduate Education, and Dr. Victor Santiago, program director in Human Resources and Development. Her work focused on the low participation of women, underrepresented minorities and persons with disabilities in science, technology, engineering and math (STEM).

“My internship educated me on how the NSF cultivates student interest in STEM today in order to affect America tomorrow,” she said. “I also learned that scientific and technical skills are important but people skills are as well.”

Joseph Gay worked in Allen’s office producing co-sponsorship memos for the senator and researching the proposed Yucca Mountain Nuclear Waste Repository. He gained a greater understanding of how policy is created in the United States.

“I have an insight into our country and government few have the opportunity to obtain. I see now how an engineer can learn to approach policy problems not just in terms of cold technical facts, but in terms of benefit to the economy, jobs created or lost and money generated.”

Brian Fox had dual responsibilities during the summer. He interned with the House of Representatives and served as the intern coordinator for the D.C. Internship Program. In both roles, he learned the importance of communication. “This internship showed me that in order to succeed in science and technology policy you must have a solid technical background and the ability to convey information.”

Korina Kalopsidiotou, a native of Cyprus, learned as much about the general workings of the U.S. government as she did about policy-making during her internship with the National Academy of Engineering. And she, along with the other interns, found the lecture series organized by Turner to be invaluable.

“Working at the academy was an important part of the summer experience, but not the only one,” she said. “The speakers were wonderful and made this an experience none of us will ever forget.” Speakers included U.S. Supreme Court Justice Stephen Breyer; William Wulf, president of the National Academy of Engineering; Congressmen Michael Honda and John Sununu; Rita Colwell, director of the National Science Foundation, and astronaut Susan Kilgrain.

For the 2002 interns, the summer was enlightening and, in some cases, a life-changing experience. And that was precisely the point.

“If anything outlasts my deanship, I hope it is this,” Miksad said. “I fully expect to see these students in policy-making positions of power someday in the future.”
TOWELS WERE HUNG OUT TO DRY IN THE sun at many of the houses at the Department of Energy’s Solar Decathlon on the National Mall in Washington, D.C.

The teams took advantage of the direct application of solar energy — sunlight — to save the power in their batteries, collected with photovoltaic cells. They had to return the dried towels to the judges to be weighed. Each team would receive the total number of points allotted only if their towels weighed to the ounce what they did before they were washed.

The practical and technical parts of the competition were under way. Decathletes were busy cooking meals, running the dishwasher and washing machine, producing a newsletter in their home offices, watching six hours of TV or video, driving an electric vehicle and taking showers with 110+° F water. The 14 teams, from colleges and universities across the nation, were busy completing their assigned tasks for the day.

In addition to doing day-to-day living chores, they were required to maintain room and water temperatures and monitor other systems on a regular schedule to earn points in the complicated rating scheme.

On Saturday, results of the event — which covered 10 contests over 11 days — were announced. The U.Va. team placed second overall and won the design and livability contest, the most heavily weighted category in the competition. The first-place finish also earned a special citation from the American Institute of Architects. In addition, the team won the BP Solar Progressive Award for the most forward-thinking team.

U.Va.’s entry in the competition is a two-year interdisciplinary collaboration between the Engineering School and the School of Architecture. More than 100 students worked on the project. Passive solar design, sustainable and reclaimed materials, and highly efficient mechanical, electrical and plumbing systems were implemented.

In addition, students devised an integrated energy storage system that supplies power when the sun is not shining and a computer-controlled system that optimizes the distribution of power.

Richard Miksad, dean of the Engineering School, praised the collaborative effort. “This was a great example of students breaking free of discipline constraints. By working together, new ideas were explored, and innovative solutions to everyday problems were developed and implemented.”

Stephanie Vierra, chair of the design jury, said the six jury members looked for ideas that represented the future, were extremely innovative and were comprehensive in solutions to design problems. “The U.Va. team attempted to integrate more solar strategies and did it more successfully than any other team,” she said.
The jury was impressed with the way the U.Va. decathletes communicated their design both verbally and in the execution. “The work of the engineering and architecture students complemented each other in a way that set them apart from the other teams,” she said.

“I could not be more pleased with the result of the solar decathlon,” said Karen Van Lengen, dean of the School of Architecture. “Through their cooperation, their technological innovation and their imagination, this team has demonstrated the real excellence of these schools at U.Va.”

The students designed and built the furniture and cabinetry using sustainably forested lumber. House materials include common wooden shipping pallets as well as slate flooring and copper siding discarded from the U.Va. Rotunda.

In the garden, a gray-water collection and filtration system waters the vegetables and flowers that grow in planters made from automobile tires salvaged from the landfill.

The house design incorporates a “smart wall,” which monitors conditions in the house and includes a touchscreen device that communicates with a website. This makes it possible to control conditions in the house from any location that has Internet connections.

The design includes a complex heating and cooling system that uses radiant heating in the floor and a valance cooling system designed to also supplement the heating system in the winter and control the moisture in the air.

“The team pushed the envelope as far as they could,” said Paxton Marshall, the Engineering School faculty adviser. “They came up with the best house they could possibly produce.”

The house will continue to bask in the sun now that the competition is over. It will be installed on U.Va. Grounds, where it will serve as a guesthouse.

“The house will be a continuing reminder of the potential of sustainable design,” said John Quale, School of Architecture faculty team adviser.

“The U.Va. team attempted to integrate more solar strategies and did it more successfully than any other team.”

STEPHANIE VIERRA, CHAIR OF THE DESIGN JURY
U.Va. Study Aims to End Ambulance Diversions at Hospitals

by Claudia Pinto

ON JAN. 9, 2001, 12 OF THE 13 HOSPITAL emergency departments in the Richmond area reached capacity and were forced to turn ambulances away.

There was no monitoring system in place to know there was a problem,” said Dr. Robert Bennett, a cardiologist and recent graduate of the University of Virginia’s Executive Master’s Degree Program in systems engineering.

“It wasn’t realized until a large number of ambulances were lined up in front of one hospital,” he said.

That incident prompted Bennett and Dr. Gerard Learmonth, the academic director of the program, to study how “diversion” can be prevented. Bennett and 21 other graduate students in the systems engineering program conducted the study, under the direction of professor Christina Mastrangelo.

“The last course is a project-based course that focuses on solving a real-world problem,” Learmonth said. “We look to solve problems that have some social benefit.”

The issue of diversion qualifies.

Robert Bennett, MD (ME ’67, SIE ’02).

“If you’re the patient, it’s a serious issue,” Learmonth said. “You would want to be brought to the nearest appropriate hospital.”

Bennett, founder of the Richmond-based Medical Reengineering Inc., noted that problems associated with diversion quickly snowball.

“If your loved one has a heart attack, you call an ambulance. If the ambulance has to search around for a hospital, your loved one is in danger,” Bennett said. “But in addition to that, the ambulance cannot respond as quickly to the next call because it is still searching for a hospital to take the first patient to.”

The growing occurrence of diversion is attributed to several factors, including an increase in the elderly population, a nursing shortage and non-emergency patients clogging up emergency departments.

“Diversion is a nationwide problem,” Bennett said. “There is nothing unique about Richmond. It’s true for all metropolitan areas.”

“Metropolitan Richmond Hospital Diversions: A Systems Analysis and Change Proposal”

Team Members:
Twenty-two second-year master’s degree candidates who are working professionals from organizations including Mitre Corp, Naval Sea Systems Command, AMS, Lockheed-Martin, Philip Morris, CACI.

Faculty Advisers:
Christina M. Mastrangelo, Barry Horowitz
http://www.sys.virginia.edu/weekend
The study, which analyzed 2001 hospital and ambulance data, concluded that one key way diversion can be avoided is by trying to predict emergency department patient caseloads on a day-to-day basis.

“Hospitals can be proactive,” Bennett said. “If they forecast by looking at data from previous years, they can eliminate the diversion problem.”

Bennett estimates that forecasting caseloads could improve staffing efficiency by as much as 15 percent. “It makes sense to have fewer staff on during low demands and more staff on during high demands,” he said.

Having more staff working when patient numbers are high also would allow more hospital beds to be opened, which is critical in moving patients out of the emergency room in a timely manner.

“There’s not a problem with the time it takes for rescue squads to get patients to the hospital. There’s not a problem with the time it takes to get patients treated in the emergency room,” Bennett said. “The problem is with getting the patients out of the emergency room and into a hospital bed once they’ve been treated.”

Jon R. Donnelly, executive director of Old Dominion Medical Services Alliance, the organization that coordinates emergency medical services in Richmond and surrounding areas, recently received a copy of the study. He said he’s “very, very impressed” by it.

“They did a thorough job of examining the problem,” Donnelly said. “It’s the first time the problem has been analyzed in some depth for our area. They have some suggestions that we can use.”

Donnelly said the next step will be to distribute the study to Richmond-area hospitals and a diversion task force for consideration.

“It’s like having a road map,” Donnelly said. “It will help us get where we need to be.”
T. Howard Noel (CE ’61), immediate past president and chairman of the board of Hayes, Seay, Mattern & Mattern Inc. (HSM), has retired after more than 34 years of service. Noel joined HSM in 1967. During his decade of HSM leadership, firm revenues more than doubled, from about $15 million to more than $35 million.

Stafford Thornton (CE ’59, ’62), former president of the American Society of Civil Engineers, was selected to chair the ASCE 150th anniversary celebration in Washington, D.C.

Wesley Harris (Aero ’64), a professor at MIT, was honored by the establishment of a scholarship bearing his name in celebration of his 60th birthday. His family and friends established the Wesley L. Harris Scholarship Fund in support of a summer program at MIT for underrepresented minority high school students.

William Putnam (CE ’66) volunteers for Habitat for Humanity in Fairfax, Va.

James Rooney (ChE ’75) was named a Fellow of the American Society for Quality (ASQ). He is a senior engineer with ABS in Knoxville, Tenn.

Lt. Gen. Robert Flowers (CE ’76) is chief of engineers/commanding general, U.S. Army Corps of Engineers. He was in command positions during Desert Shield and Desert Storm and during operations in Somalia and Bosnia.

John Christens Jr. (Nuc ’76) is a corporate vice president with SAIC in New Orleans.

Kenneth Sheets (ChE ’76) is professor of Bible and Biblical Languages at Ambassador Baptist College in Lattimore, N.C.

David Van Petten (Nuc ’77) is commanding officer of the U.S. Naval Reserve NAVSEAL Detachment at the Washington Navy Yard in Washington, D.C. He also is a senior engineer at Northrop Grumman.

T. Kevin DeNicola (ChE ’79) is senior vice president and CFO of Lyondell Chemical Co. in Houston.

Charles Brown Jr. (CE ’81) is vice president of Dixon, Hubbard & Feinour Inc., where he is a financial analyst. He resides in Roanoke, Va.

William Gorman Jr. (EE’ 82) and his wife had a child, William John III, in March. The family lives in San Francisco.

Alden Hathaway (EE, ’82) was featured in a Washington Post article titled “Plugged Into the Sun: A Solar House in Loudoun County Functions Like a Laboratory, But Lives Like a Home.”

Roger Millar Jr. (CE ’82) and his wife had a son, Roger M. Millar III, in March. He is the principal with Otak Inc., an architecture,
engineeering and planning firm. The family resides in Carbondale, Colo. He is the son of Roger M. Millar (CE ’58) and the great-great grandson of Roger Martin, an 1836 graduate of U.Va.

Jeff Wright (CS ’83) and his wife, Meg, had a child, Sydney Anne, in April. The family resides in Coral Gables, Fla.

Thomas Joost (ME ’82, ’84) is vice president of the Tactical Systems Group with the Veridian Systems Division. He is married to Barbara O’Connor Joost (ME ’84).

Steven Harris (Aero ’82, ’84) and his wife had their second child, Elizabeth Rose, in August 2001. He is an engineering manager with Northrop Grumman’s Ryan Aeronautical Center. The family resides in San Diego.

David Hume (Aero ’84) is a lieutenant colonel in the U.S. Air Force with the 17th Air Support Operations Squadron.

Bruce Hassett (EE ’85) and his wife had a son, Noah Ethan. His sister, Alana Joy, is now 4 years old. Bruce is a district sales manager for Genuity and resides in Vienna, Va.

Gabriel Sabadell (ChE ’85) is a vice president of Blassland, Bouck & Lee, an environmental consulting firm in Golden, Colo.

Robin Foster (ME ’81, SE ’86) received her 12th U.S. patent for work in predictive and adaptive work assignment algorithms for multimedia contact centers. She works for Avaya Inc. and lives in Little Silver, N.J.

Peter Thomas (MAE ’86) is an engineering manager for Sperry Marine in Charlottesville, Va.

Kim Brooks (Aero ’87) is a lieutenant colonel in the U.S. Air Force. She and her husband have two daughters and live in San Antonio, Texas.

Steven Parker (EE ’87) is a member of the Million Dollar Advocacy Forum. He is an associate with Davis & Harmon in Tampa, Fla.

James Busch (CS ’88) is employed as principal scientist in the Communications and Information Systems division of the NATO C3 Agency in The Hague, Netherlands.

Matt McCormick (SE ’88) is assistant professor of telecommunications & information technology at DeVry University, Chicago. He has spent most of his career with Motorola and Cisco Systems. His work has taken him to England, Ireland, Norway, Germany, Russia, South Africa, Jordan, Qatar, UAE, Kuwait, Japan and South Korea. He has started his own consulting business as well (www.mpmccormick.com).

Matthew Anderson (SE ’89) and his wife had a third child, Scott Matthew, in January.

Scott Bialecki (CS ’89) and his wife had their first child, Wilson Robert, in June 2001. Scott is a lawyer with Sheridan Ross. The family resides in Littleton, Colo.

Carl Showalter (SE ’89) is a general partner at Lightspeed Venture Partners in Menlo Park, Calif., where he works on early stage funding of technology companies in the communications space.

1990s

Heather Lowe Becker (ME ’91) and her husband had a daughter, Allison Sarah, in May. Ms. Becker is director of materials management for Abbot Laboratories. The family lives in Lake Villa, Ill.

Susan Pan (EE ’91) is a partner with the law firm Sughrue Mion.

Dennis Callahan (ME ’92) is lieutenant commander of the aircraft carrier USS George Washington.

Tariq Khan (ChE ’92) completed an MS in environmental engineering at Rice and is now in the University of Chicago’s MBA program.

Robert Laferriere (BME ’93) is a manager with Software Technology & Platforms for GE Medical Systems Information Technologies in Milwaukee. He resides in Wisconsin with his wife, Penny, and sons Ethan (5) and Samuel (2).

Andrew Girvin (ME ’94) and his wife had a daughter, Karson Ann, in November 2001. The family resides in Richmond, Va.

Robert Mozeleski (EE ’94) and his wife had a daughter, Elise Anna, in August 2001.

Rebecca Lankey (ME ’93, MSE ’95) is a member of the White House Office of Science and Technology.

Albert Williams Jr. (CE ’93, MSE ’95) and his wife had a son, Caden A. Lionel, in February. He is the senior civil engineer for the city of Portsmouth, Va.

William Decker (Engr Physics ’95, ’96) is a fellow of the International Society for Philosophical Enquiry and works with the technology transfer and
intellectual property services office of the University of California at San Diego.

Brian Dorsey (Engr Physics ’96) received the human awareness award from the Naval Surface Warfare Center’s Dahlgren Division, where he is an engineer.

Todd Kennedy (ChE ’96) is director of marketing and analysis at Capital One’s Amerifirst division in Southborough, Mass.

R. Michael Biggs (CE ’97) worked on a construction management services project to create a math, computer science, astronomy, physics and environmental sciences building for Emory University in Atlanta.

Christy Bixler (CE ’97) is an engineer at Parsons in Fairfax, Va., managing environmental projects.

Casey Nolan (CE ’97) lived in Santa Barbara, Calif., while she built a Delta IV rocket launcher for Boeing as a project manager for Clark Construction. She now attends Harvard Business School.

Bertina Lee (CS ’99) won a gold medal in the World Kick Boxing Championships in Vienna, Austria (2001) and won the gold medal for the women’s Muay Thai (Thai boxing) division in the World Kick Boxing Championships in Marina de Massa (2002). She is employed with Dominion Resources Inc. and resides in Richmond, Va.

Adriane Davis (SE ’99) is beginning a doctoral program in computer information systems at Georgia State University’s Robinson School of Business.

Robert Sidner (ChE ’99) is with Eastern Research Group in Chantilly, Va., an environmental consulting firm.

2000s

Kevin Cooper (MSE ’96, ’01) is a senior corrosion engineer with Luna Innovations. He recently received the Morris Cohen Graduate Student Award from the Electrochemical Society Inc. He was noted for his work in advancing the understanding of the environment within stress-corrosion cracks that occur in high-strength aluminum alloys such as those used in aircraft.

Molly Sherman (ChE ’01) married Erik Anderson (CS ’01) in May 2001.

Gary Coleman (SIE ’02) and Jim G. Coleman (SIE ’02) are a father-and-son duo who graduated together last May though they lived miles apart. Gary attended the Engineering School’s Executive Master’s Degree Program at the National Conference Center in Leesburg, while Jim was in Charlottesville earning his undergraduate degree. “We shared some professors and kept track of each other through them,” Gary Coleman said. “Jim even helped me with homework a few times.”

A Gift Worth Giving

Traditionally, Annual Fund donations have been a significant source of the Engineering School’s financial support. Your donation to the school will help ensure our continued strength and academic excellence.

We invite you to join more than 2,700 other U.Va. alumni and friends who have formed an honorary circle of Engineering School supporters this year.

The staff of the Virginia Engineering Foundation is available to consult with you or your adviser about giving opportunities.

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1930s
William R. Chapman (EE ’30) of Los Angeles, Calif., died in July.
Frederick M. Belmore (Engr. ’36) of Chicago, Ill., died in May.

1940s
John M. Roberts (EE ’40) of Covina, Calif., died in May.
James H. Kahler Jr. (CE ’43) of Virginia Beach, Va., died in September.
Aubrey S. Bass Jr. (CE ’44) of Richmond, Va., died in April.

1950s
Robert G. Remington (CE ’50) of Virginia Beach, Va., died in January.
Joseph H. Judd (Aero. 51) of Oneonta, N.Y., died in February.
Coleman B. Maddox (ME ’52) of Danville, Va., died in May.
James R. Shull (CE ’52) of Falls Church, Va., died in April.

1960s
John A. Biggs (ME ’62) of Windsor, Calif., died in May.

1980s
David Veasey (EE ’89, ’91) of Boulder, Colo., died in March. He is survived by his wife, Cynthia Pruett Veasey (Col ’88). An endowment in his honor has been established to benefit Jubilate, a chorale sponsored by the University Baptist Church of Charlottesville.

in memoriam

John Kenneth Haviland
1921–2002
John Kenneth Haviland, a professor and scholar, died in July. He was the last remaining American survivor of the Battle of Britain.
Haviland was born in New York of an American father and a British mother. He moved to England when he was 4, following the death of his father. His love of flying was evident throughout his life and led him to join the Royal Air Force Volunteer Reserve when he was 18. “I joined the RAF in 1939, not because I thought there was going to be a war, but because it looked like a good way to get in some free flying,” he often said. He flew some 1,562 hours during the war and received the Distinguished Flying Cross.

“He loved to fly and he loved to teach,” said his son David.
Haviland earned a degree in mechanical engineering at London University and later earned a PhD in aeronautical and astronautical engineering at MIT. He joined the University of Virginia faculty in 1967, teaching first in the Hampton Roads area and then on Grounds for a total of 24 years.
He was an authority in the fields of structural dynamics, acoustics, and vibration absorption in aircraft, helicopters and space structures. “He loved airplanes and could tell you anything you wanted to know about just about any aircraft,” said Walt Pilkey, a fellow professor in the MAE department. ‘He was great to have in the department and he was a great friend.”
A display in the Smithsonian Air and Space Museum honors Haviland and six American RAF flyers who were killed in the war. The Dr. John Kenneth Haviland Scholarship in Engineering and Applied Science has been established in his name.

Special Friends
E.C. Stevenson, a professor emeritus who earned a Bronze Star for his involvement in the development and delivery of the atomic bomb, died in July at the age of 95. He was born in Oregon to a husband-and-wife team of mining engineers. He was raised in Richmond and earned a degree in engineering in 1928 and in physics in 1931. While a student here, he won the 1931 Virginia Academy of Science research prize for his study in molecular structure. He was a member of the physics and electrical engineering faculty for 23 years until his retirement in 1973.

John McGaughy, a Norfolk native, died in June at 87. He was the great-grandson of John Bell, speaker of the U.S. House of Representatives, who ran against Abraham Lincoln in the presidential election in 1860. McGaughy studied engineering at U.Va. for three years before he transferred to Duke University in order to graduate within the following year. He often said that he may have received his degree from Duke, but he received his education from Virginia.

Following graduation he worked as an engineer for the federal government for several years, then formed Lublin, McGaughy and Associates, an architectural and engineering firm. In 1970 he was recognized as the Virginia Engineer of the Year. A gift of $100,000 from his estate was given to the Engineering School to endow a graduate student fellowship.
I AM A PARENT OF A U.VA. ENGINEERING School graduate rather than a graduate myself. Yet, when my son chose to go to U.Va., the success of the Engineering School became as important to me as the success of my own alma mater. As you would expect, I was not disappointed by the experiences that awaited my son. He received a first-class engineering education from a talented faculty while soaking in the culture of a well-rounded university. Quality engineering training in a liberal arts environment and in-state tuition for many of its students is a unique package worth preserving.

When my son was an undergraduate, I began serving on the Dean’s Advisory Council. Later, at Dean Miksad’s suggestion, I helped set up the MIT/U.Va. D.C. Summer Intern Program. My work with the Engineering School has been fun and rewarding and has given me something additional to share with my son. Today’s Engineering School is dynamic and continually improving.

The school currently attracts a unique sort of young person – bright, technologically talented, but with interests well beyond the computer screen or the drawing board. Once here, the programs they enter and the support and education they receive mold them into technologically proficient future leaders. As I’ve learned in working with the D.C. interns, there is not much difference between the top students at U.Va. and MIT in terms of interests and abilities. Each summer, the two student groups become one very quickly, and they are all exciting and inspiring to be around.

Who wouldn’t want to be educated in a school that provides this kind of environment? If you have not been around the school for a while, I urge you to come and take a look.

We are entering a period when the Engineering School needs the help of all its friends. The school is set to step forward on a number of initiatives at a time when state support is disappearing. The school will go forward and continue to prosper with the help of alumni and friends who are willing to accept a role in this process. I, for one, hope we collectively rise to the challenge and help the Engineering School achieve its potential.

Those of us who can afford to certainly should be generous, but there are many other ways to help, especially if we think beyond the box and look for ways that our talents, contacts and creativity can help the school move forward. I hope you’ll keep your eyes open for ways to get involved in the months ahead. If my experience is any indication, helping the Engineering School is personally satisfying and well worth the effort.

—JAMES TURNER
Chief Democratic Counsel
Committee on Science
U.S. House of Representatives

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Jane Hope and Ashley Engels at the 2002 Thornton Society Dinner.
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