

A rendering of the Virginia Commonwealth University School of Engineering from Main Street, a part of Phase II of the school's expansion, which will create additional classroom, laboratory and office space.



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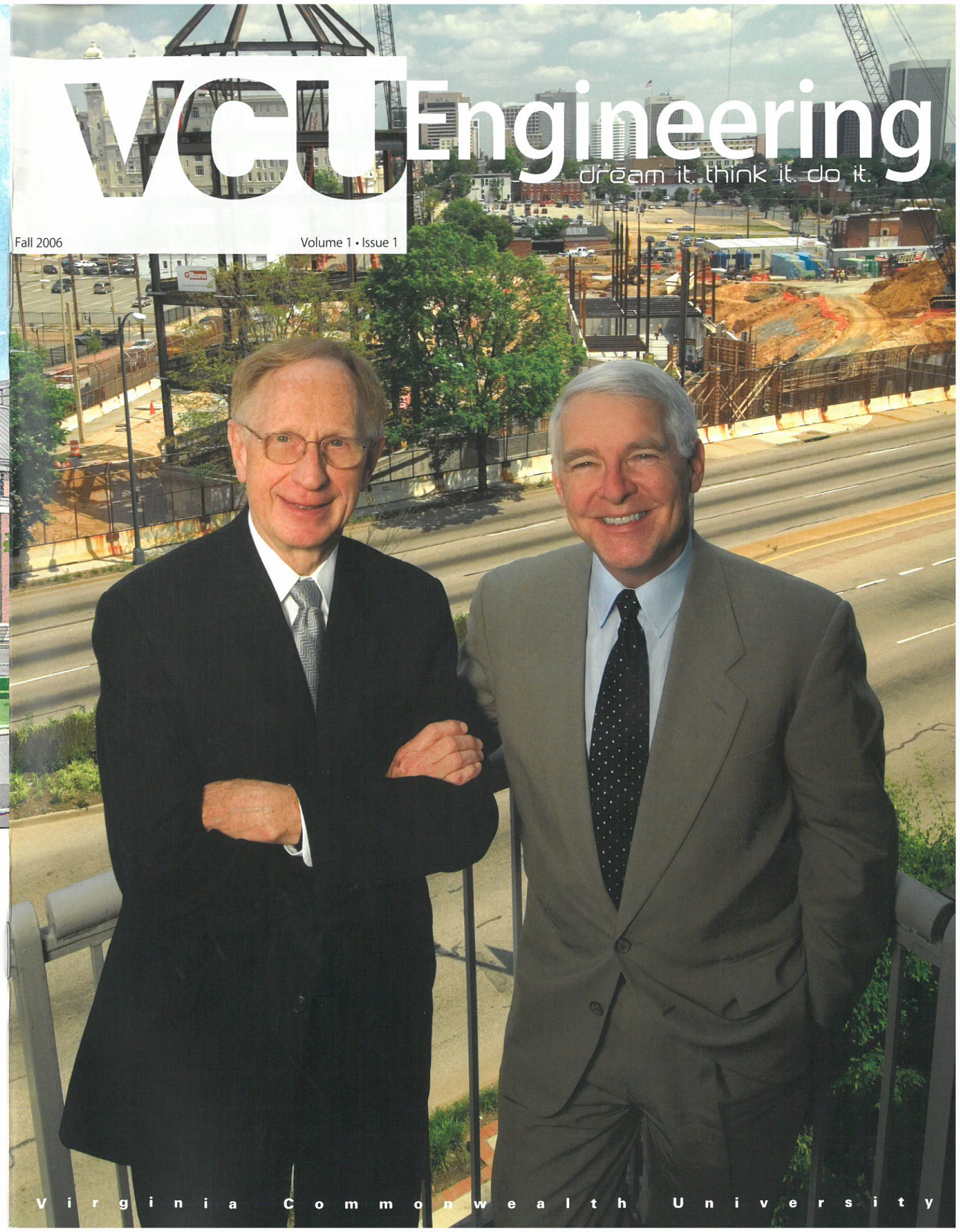
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VCU Engineering

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Fall 2006

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V i r g i n i a C o m m o n w e a l t h U n i v e r s i t y

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Cover photo (left to right): Dr. Robert J. Mattauch, retired dean, and Dr. Russell D. Jamison, new dean

Reflections ...

As I step out of the dean's office and prepare to join my colleagues on the faculty and head back into the classroom once again, I can't help but reflect on the amazing people who have nurtured the Virginia Commonwealth University School of Engineering from its infancy to the present. It has been a remarkable journey, and the best is yet to come.

First let me acknowledge and thank all of those who "birthed" the school. Dr. Trani and Bill Goodwin who created a vision that our founding trustees and the corporate community embraced and helped turn into reality. The students who took a chance on the VCU School of Engineering when we held our first class on Aug. 26, 1996 at 1 p.m. in GPAB 208. Our founding dean, Henry McGee, and first faculty members, Tom Haas, Greg Tait and others who built the curriculum from scratch. How far we have come from those days of borrowed classrooms, labs and equipment.

I remember with great fondness the Pre 101 lunchtime discussions at Bruegger's Bagels in the early days and how this interaction evolved into our own weekly Coffee and Bagel Hour.

You may recall that Sen. George Allen, one of our greatest advocates and a true champion of technology and innovation, spoke at our first graduation in May 2000. It was with tremendous pride that we awarded degrees to the 57 students who took a leap of faith with us and blazed the trail for future generations of VCU School of Engineering alumni.

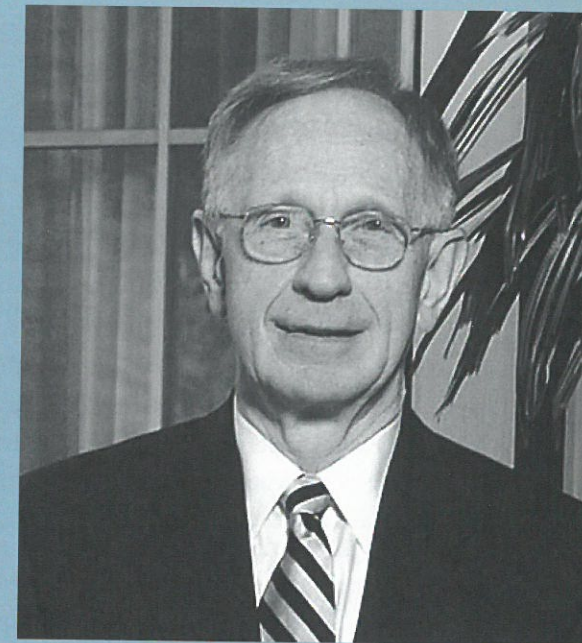
Together, we have accomplished much, but there is important work ahead. Your School of Engineering is well on the way to securing its place among the top engineering programs in the country.

I will be forever grateful for all of your support and encouragement during my tenure as dean. It has been a privilege to work with each of you.

Warmest wishes,



Robert J. Mattauch



News

Statewide nanotechnology partnership wins grant

words | Anne Buckley, University News Services

The Virginia Partnership for Nanotechnology Education and Workforce Development, which includes the Virginia Commonwealth University School of Engineering, has received a National Science Foundation grant to offer distance-learning graduate degree and certificate programs.

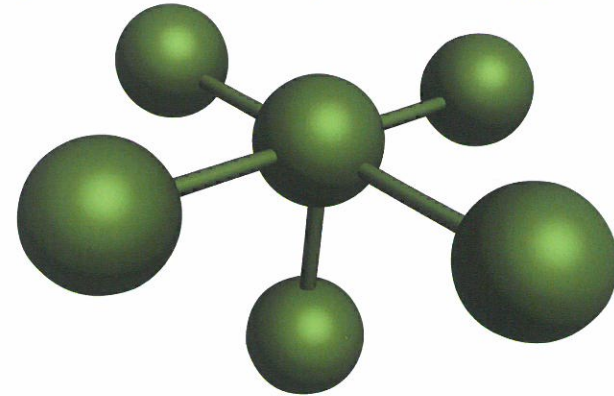
The newly formed partnership received a "Partnerships for Innovation" grant that totals \$600,000, which will enable it to offer the opportunity to students at six Virginia universities and to engineers in the workplace.

The Virginia Partnership for Nanotechnology Education and Workforce Development is a collaboration of the engineering institutions at VCU, The College of William and Mary, George Mason University, Old Dominion University, the University of Virginia and Virginia Tech.

The partnership builds upon the state's Commonwealth Graduate Engineering Program and the Virginia Microelectronics Consortium. CGEP was founded in 1984 to offer distance-learning engineering education at the master's level. The consortium was founded in the mid-1990s to support development of the microelectronics industry in Virginia through collaborations between universities and the corporate community.

The partnership will begin offering graduate-level engineering classes in the spring of 2007. Distance-learning courses will be organized around five educational tracks: nanomanufacturing; nanomaterials and characterization; nanomodeling and simulation; nanoelectronics; and nanobiotechnology.

In addition to contributing courses for use in traditional graduate degree programs, the partnership also will offer opportunities for working professionals in the field of engineering to study only the specific aspects of nanotechnology that interest them. By completing a sequence of four to five classes in a specific area of nanotechnology, i.e., nanoelectronics, professionals can earn



a certificate in a program that may not have been taught when they went to school.

Corporate partners for the program include Qimonda, formerly Infineon Technologies, Luna Innovations, Materials Modification, Micron Technology, NanoSonic, NanoTitan, Northrop Grumman – Newport News and Philip Morris.

"Qimonda's focus on innovation, such as our cutting-edge semiconductor wafer fabs in Richmond, requires a workforce that is creative and passionate in delivering new memory solutions to market," said Henry Becker, president, Qimonda North America. "A strong engineering talent pool in Virginia will ensure both our company's future success as well as economic development for the region, and we are committed to continuing our strong collaboration with local universities to support these types of programs."

Terry Leslie, manager of university and academic relations at Micron Technology Virginia and member of the Virginia Research and Technology Advisory Commission, said Micron's "partnerships in education and technology with individual universities, such as Virginia Commonwealth University, are critical to our success, but a joint collaboration with all of the major Virginia universities on nanotechnology education and workforce development brings incredible leverage to Micron Technology and other companies in the commonwealth."

Foundation board elects two new trustees

The Virginia Commonwealth University School of Engineering Foundation elected two new trustees to its board during its fall meeting on Nov. 1, 2005. Charles H. Neal and Bradford A. Crosby, ChE '01.

Neal is president of Symbol Mattress Inc. Symbol Mattress, founded in Richmond more than 40 years ago, is now the fourth largest, privately owned mattress company in the U.S. The company has plants in Alabama, Connecticut, Florida, Indiana, Pennsylvania, Virginia and Wisconsin. Divisions of the company include Eastern Sleep Products and Quality Springs Inc. Neal also is president of Hylton House Furniture Inc. in Kenbridge, Va., and vice president of Thetford Financial Services Inc., a financial planning company in Richmond. He is a graduate of UNC-Chapel Hill and earned his M.B.A. from the University of Maryland.

Crosby entered VCU's School of Engineering in 1997. While a student, he co-founded ChemEngine, a student-run engineering consulting firm that offers consulting services using other engineering students. After graduating in 2001, Crosby accepted a position with Infineon Technologies (now Qimonda), a major semiconductor manufacturer, as a sustaining/process engineer. He has moved through several assignments of increasing responsibility and today is lithography process track and defect reduction technical supervisor for Qimonda's Richmond plant. In this position he supervises eight engineers and works to increase the plant's level of performance by communicating expectations and garnering support. While he has advanced in his field, Crosby has retained strong ties to VCU. He is the founding president of VCU School of Engineering Alumni Board.



Charles H. Neal



Bradford A. Crosby '01

Imagine this ...

A team of Virginia Commonwealth University students won first place for 2006 in Microsoft Corp.'s annual Imagine Cup software design competition for the second year in a row and will represent the U.S. in the worldwide competition later this year.

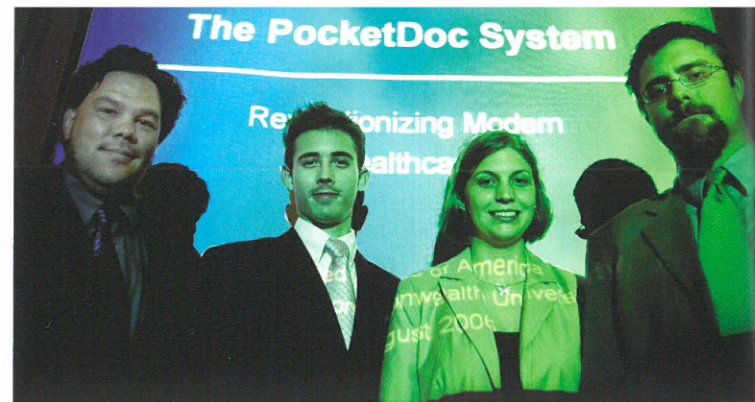
The Software Design Invitational of Imagine Cup 2006, Microsoft's premier competition for technology students, provides a stage for the creative and technological innovations of students worldwide. The competition was held May 4 through May 6 in Redmond, Wash.

The VCU team included William Calder, Joanne Cunningham, A. Brooks Hollar and Brandon Saunders, all graduate students in the VCU School of Engineering's Department of Computer Science. The team won for PocketDoc, an application that runs on mobile devices and actively links doctors and patients in a collaborative fashion. PocketDoc allows doctors to see how their patients are adhering to their treatment guidelines. It also enables patients to be more involved in their treatment, with regular alerts and notifications regarding medication and other matters.

A field of 150 teams from around the U.S. was narrowed to 13 for the final competition. Three of those 13 were from VCU. One of the VCU teams consisted of students from the VCU School of Business' Department of Information Systems, a second team was a mix of students from the schools of Business and Engineering and the team that won was all engineering students.

"The way these students used engineering skills to develop an application for the business world is a fine example of why we are putting our schools of Engineering and Business together," said Eugene P. Trani, Ph.D., president of VCU. "The expansion of the Monroe Park Campus is based on the foundation that having business and engineering students living and studying together will foster a more bench-to-market approach to research and development as they go out into the working world."

The winning team won a cash award of \$8,000 and a trip to the worldwide finals in India for a chance at more than \$25,000 in prizes. The second and third place teams were from the University of Nebraska at Omaha and East Tennessee State University, respectively.



Team PocketDoc includes (from left) William Calder, Brandon Saunders, Joanne Cunningham and A. Brooks Hollar.

"This is the second year in a row that a team of students from VCU was selected as the national winner in this prestigious competition," said Robert J. Mattauch, former dean of the VCU School of Engineering. "This speaks volumes about the emphasis at VCU on innovation, creativity and real-world applications of what the students learn in the labs. After all, engineering is about creating what has never been."

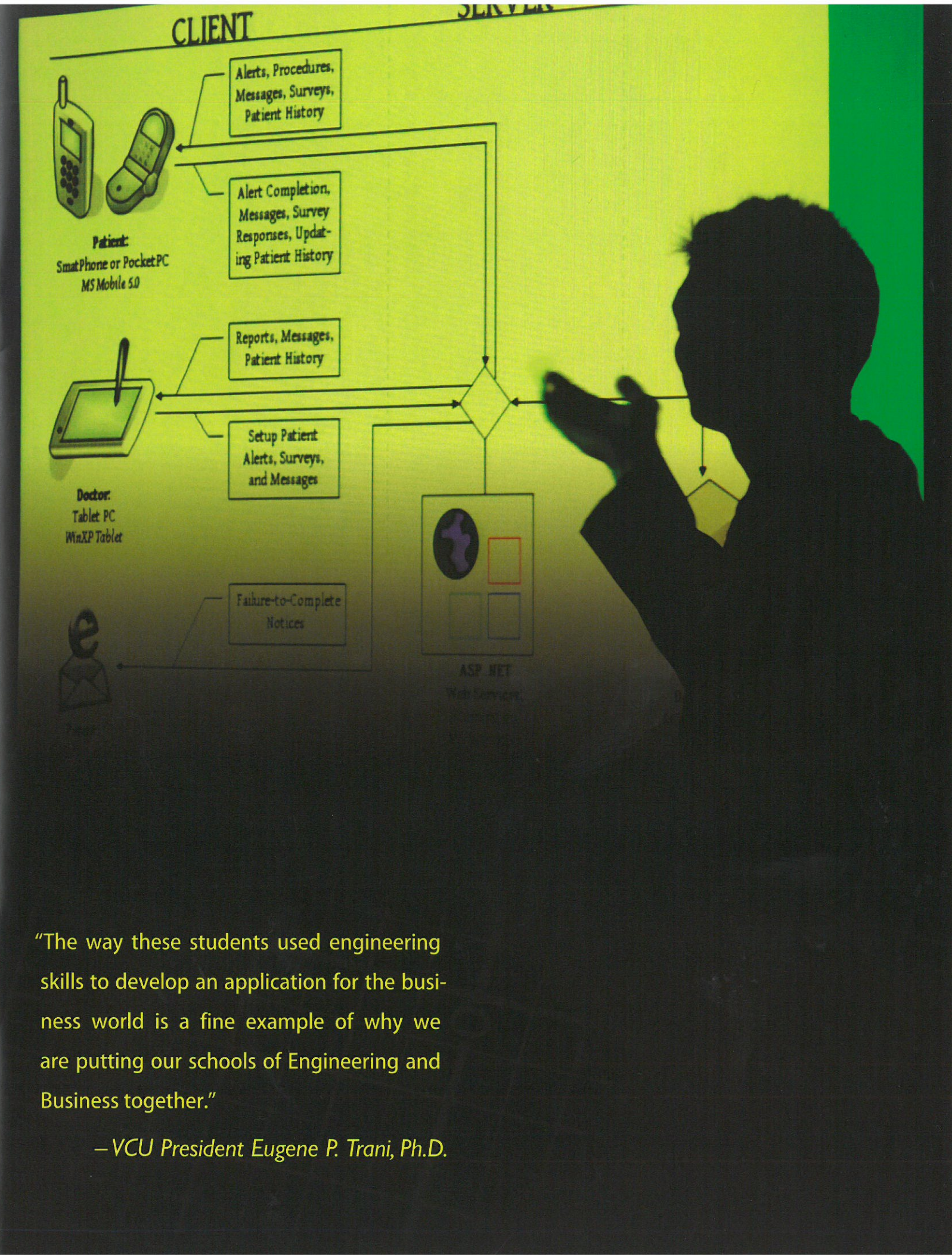
Hollar, a member of the winning VCU team, said the competition was stiff.

"The bar was set very high with this Imagine Cup competition, and we're thrilled and honored to be named U.S. champion and going to India to the worldwide finals," he said. "The Imagine Cup is such an exciting event and allows students like me and my team to do something that really matters: work together to create software solutions that make a difference in the real world."

Last year's winning team, a mix of students from the schools of Business and Engineering, took the honors for its tablet PC-based teaching tool for early childhood education.

Founded in 1975, Microsoft is the worldwide leader in software, services and solutions that help people and businesses realize their full potential.

"The students at this year's Imagine Cup represent the next generation of technology and business leaders," said Sanjay Parthasarathy, corporate vice president of Developer and Platform Evangelism at Microsoft and whose team organizes the Imagine Cup. "Each team has created an application that demonstrates the power of software in solving real-world problems. Their creativity, innovation and commitment to improving people's lives is inspiring and speaks volumes about their futures and that of technology overall."



"The way these students used engineering skills to develop an application for the business world is a fine example of why we are putting our schools of Engineering and Business together."

— VCU President Eugene P. Trani, Ph.D.



*Mattauch says so long,
but not goodbye*

Mattauch says so long, but says so long, but not goodbye

More than 200 well-wishers attended a June 7 reception at the School of Engineering's Mary Morton Parsons Courtyard honoring Robert J. Mattauch, who stepped down as dean on June 30, 2006.

During this event, Virginia Commonwealth University President Eugene P. Trani praised Mattauch for his leadership as dean of the School of Engineering and announced that an endowed chair has been established in his honor. Addressing the guests, Trani said, "The Robert J. Mattauch Chair will serve as a lasting tribute to Bob Mattauch for his dedication to the School of Engineering."

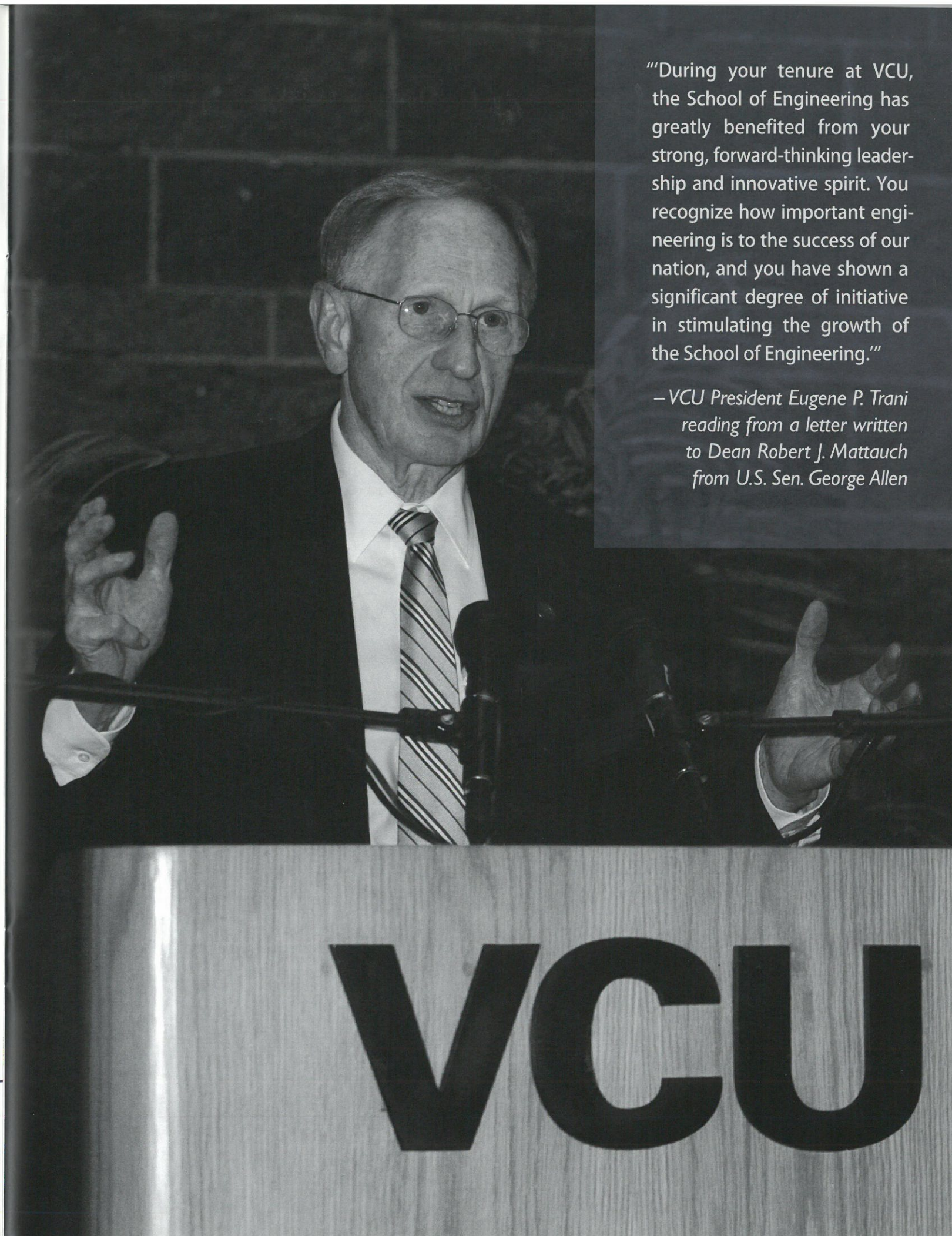
John Sherman, president of the School of Engineering Foundation, served as emcee of the program and introduced several speakers. Dr. Rosalyn Hobson, a member of the School of Engineering faculty since 1996 and one of Mattauch's former students at the

University of Virginia, spoke about the impact that Mattauch has had on her life as a teacher, mentor and colleague. Dr. James Aylor, dean of the School of Engineering and Applied Science at the University of Virginia and one of Mattauch's former students, described Mattauch as a role model and friend. Brad Crosby '01, president of the Alumni Board, presented Mattauch with a bronzed bagel in appreciation for his commitment to the students. During his tenure as dean, Mattauch served an estimated 20,000 bagels to students during the popular "Coffee and Bagel Hour" on Fridays, which helped create a strong sense of community within the School of Engineering that has become one of the school's hallmarks. Kirk Spitzer, founding trustee of the School of Engineering, announced that several trustees made campaign gifts to name one of the new classrooms in the Phase II facility in Mattauch's honor. Mattauch's son, Thom, shared comments on behalf of the family. William H. Goodwin, chairman of the School of Engineering Foundation, praised Mattauch for leading the school in achieving so many accomplishments and then unveiled a portrait of Mattauch that will hang in the school. Goodwin also acknowledged Fran Mattauch for her years of service to the school and presented her with a bouquet of flowers.

Mattauch gave an emotional response and offered his thanks for the opportunity to serve the VCU School of Engineering.

Mattauch joined the School of Engineering as a founding member of the faculty and chair of the electrical engineering department in 1996 and was named dean in 1999. During his tenure as

This page: Fran and Bob Mattauch enjoy the evening. Opposite page: Dean Mattauch gives an emotional goodbye.



"During your tenure at VCU, the School of Engineering has greatly benefited from your strong, forward-thinking leadership and innovative spirit. You recognize how important engineering is to the success of our nation, and you have shown a significant degree of initiative in stimulating the growth of the School of Engineering."

—VCU President Eugene P. Trani
reading from a letter written
to Dean Robert J. Mattauch
from U.S. Sen. George Allen

dean, Mattauch has overseen major growth in enrollments, the accreditation of all five academic departments, the approval of a new computer engineering program and increased funding for sponsored research.

Since 1999, the enrollment at the School of Engineering has nearly doubled, increasing from 580 to 1006 undergraduates. Graduate student enrollment has grown from 48 to 187 during this same period. During his academic career, Mattauch advised more than 75 graduate students, including 25 Ph.D. students.

"Bob Mattauch has helped shape the character of this school from its inception," commented Trani. "His passion for our School of Engineering is contagious. When he walks down the hallway, Dean Mattauch acknowledges each student by name."

Mattauch will take a one-year sabbatical and return to the faculty at the School of Engineering in the fall of 2007.

Mattauch earned his bachelor's degree in electrical engineering from Carnegie Institute of Technology and his master's and doctoral degrees in electrical engineering from North Carolina State University.



Accomplishments

Oversaw the school's first accreditation visit resulting in accreditation for all eligible programs, the approval of a new computer engineering program and the installation of the engineering honor society, Tau Beta Pi.

Shepherded the approval of the school's graduate program by the State Council on Higher Education of Virginia.

Awarded degrees to all of the School of Engineering's graduates.

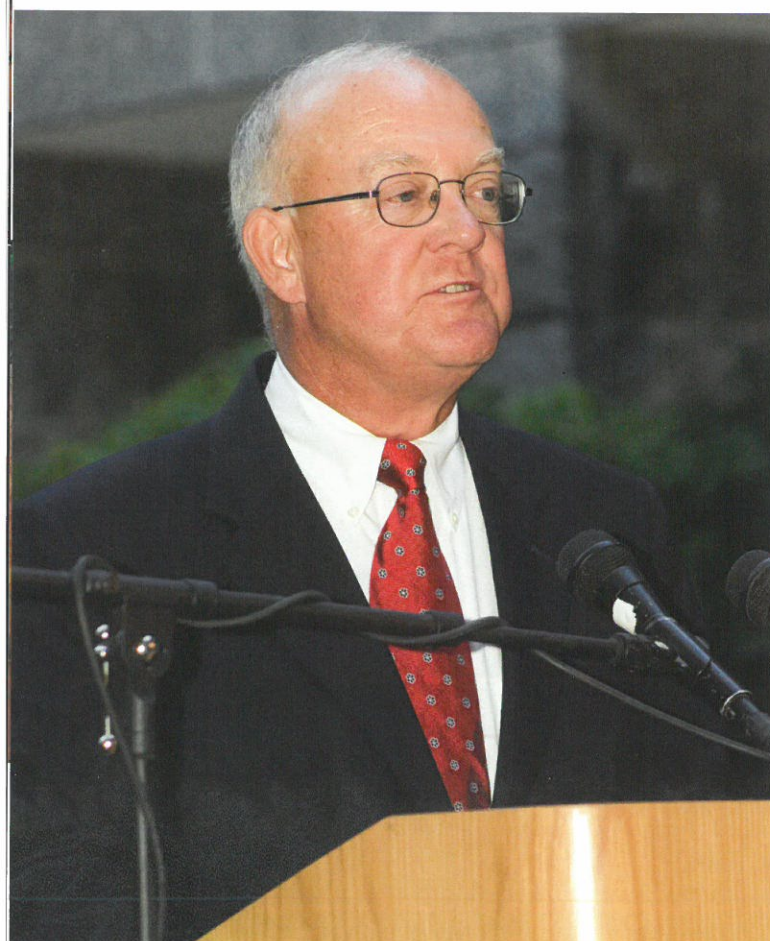
Advised more than 75 graduate students during his academic career, including 25 Ph.D. and 50 master's degree recipients.

Provided leadership and vision for the design and construction of the Wright Virginia Microelectronics Center.

Accelerated VCU along the path of becoming a top tier engineering school by driving the school's expansion and by leading a campaign to establish a strong research capability.

Opposite page top: Alice Goodwin (center) and Josee Covington greet Robert Mattauch. Opposite page bottom: Kirk Spitzer, a founding trustee of the School of Engineering, announced that a classroom in the new building will be named for Mattauch.

This page top left: Bill Goodwin (left) and Joe Farrell. This page top right: Dr. James Aylor, dean of engineering at University of Virginia, shared comments about his former professor and fellow dean, Bob Mattauch. This page right: Dr. Eugene P. Trani announced that a new endowed chair will bear Mattauch's name. This page below: Mattauch welcomes two of the school's founding trustees, Bruce Henderson (center), chairman and CEO of Imation Corp., and Wayne Nesbit (right), senior vice president of operations at Mindspeed Technologies Inc.



New dean

As Virginia Commonwealth University's School of Engineering celebrates its successful first 10 years, a new dean ushers the school into the next phase of expansion and development.

On May 4, Virginia Commonwealth University President Eugene P. Trani announced the appointment of Russell D. Jamison, Ph.D., to be dean of the School of Engineering, effective July 1.

Jamison has been a professor of bioengineering and materials science at the University of Illinois at Urbana-Champaign since 1998 and is the former director and co-director of its Technology and Management Program. He has extensive experience in both higher education and in corporate management, which dovetails with VCU's plans to co-locate its School of Business with the expansion of the School of Engineering in a new 240,000-square-foot facility.

"Dr. Jamison's experience and approach to the mission of engineering education is a perfect match for VCU's School of Engineering, which is focused on the connections between business, life sciences and engineering," said Dr. Trani. "We expect the interaction between the School of Engineering, VCU Life Sciences and the Virginia BioTechnology Research Park to grow and be enhanced under his leadership."

In addition to the University of Illinois at Urbana-Champaign, Jamison was a member of the faculty at the U.S. Naval Academy. He served as principal consultant to Health Technology Resources, a Tennessee-based company and as senior vice president for research and development at Smith & Nephew Orthopedics, also in Tennessee.

"I'm delighted to come to VCU and be a part of this exciting chance to continue the growth and excellence of the School of Engineering," Jamison said. "VCU presents a unique opportunity

to combine business, medicine and engineering in creative programs for undergraduate and graduate students."

Jamison earned his doctoral and undergraduate degrees from Virginia Tech and his master's degree from the University of Virginia. He is a prolific researcher with more than \$800,000 in current funded research. His research interests are tissue engineering and he holds four patents.

"In addition to being a creative and effective administrator, we are looking forward to him leading the school as it moves into its next phase, which will have business and engineering students living and studying together to foster more bench-to-market research," said Stephen Gottfredson, VCU provost and vice president for Academic Affairs. "He is a good fit for the concept."

The schools of Engineering and Business are major components of VCU's new additions to the Monroe Park Campus — a new building is being erected for the business school, and a second phase of the engineering school is being built. The new facilities will allow the schools to add about 2,000 students.

The VCU School of Engineering is a 1,200-student school that was established in 1996 to respond to the needs of the international engineering community, business and the manufacturing sectors of both Virginia and the U.S.

Robert J. Mattauch, Ph.D., a founding faculty member, retired from the dean's position on June 30, but will remain on faculty. He initially was chair of the electrical engineering department and was named dean in 1999.



Campaign for VCU

Campaign tops \$59 million

The Virginia Commonwealth University School of Engineering is in the final stages of the most ambitious fundraising effort in its 10-year history. With a comprehensive goal of \$68 million, the school continues to seek funding to capitalize the School of Engineering Foundation to meet its priorities — including expansion of the facilities as well as funds for scholarships, chairs, professorships and programs. To date, the school has received more than \$59 million in cash and pledges.

A major focus of the campaign is the construction of the Phase II engineering facility, which will provide an additional 115,000 square feet of classrooms, teaching and research laboratories, faculty offices, and other student-centered spaces. Located directly across Belvidere Street from the Phase I engineering building, Phase II will enable the school to incrementally increase its enrollment from 1,200 to 1,900 over the next few years. The Phase II engineering building will be co-located with the new home for the VCU School of Business. The close proximity of the schools of Business and Engineering will enhance collaboration between the students and faculty. The departments of Mechanical Engineering and Computer Science will be housed in the Phase II facility.

Thanks to the donors

Following its May 18 board meeting, the School of Engineering Foundation trustees recognized nine new donors whose recent gifts to the School of Engineering has reached \$1 million or more. These donors include Joseph C. Farrell, Stanley and Dorothy Pauley, Mark and Anne Sternheimer, Philip Morris USA, Richard and Sherry Sharp, Morgan and Joan Massey, NewMarket Corporation, the Gottwald Family, and Qimonda. The donors' names were added to a wall plaque located in the main lobby of the School of Engineering.

According to engineering campaign committee chairman John Sherman, "The School of Engineering is fortunate to continue

to receive outstanding support from both individuals and the corporate community. I am constantly inspired by the tremendous commitment to this important effort."

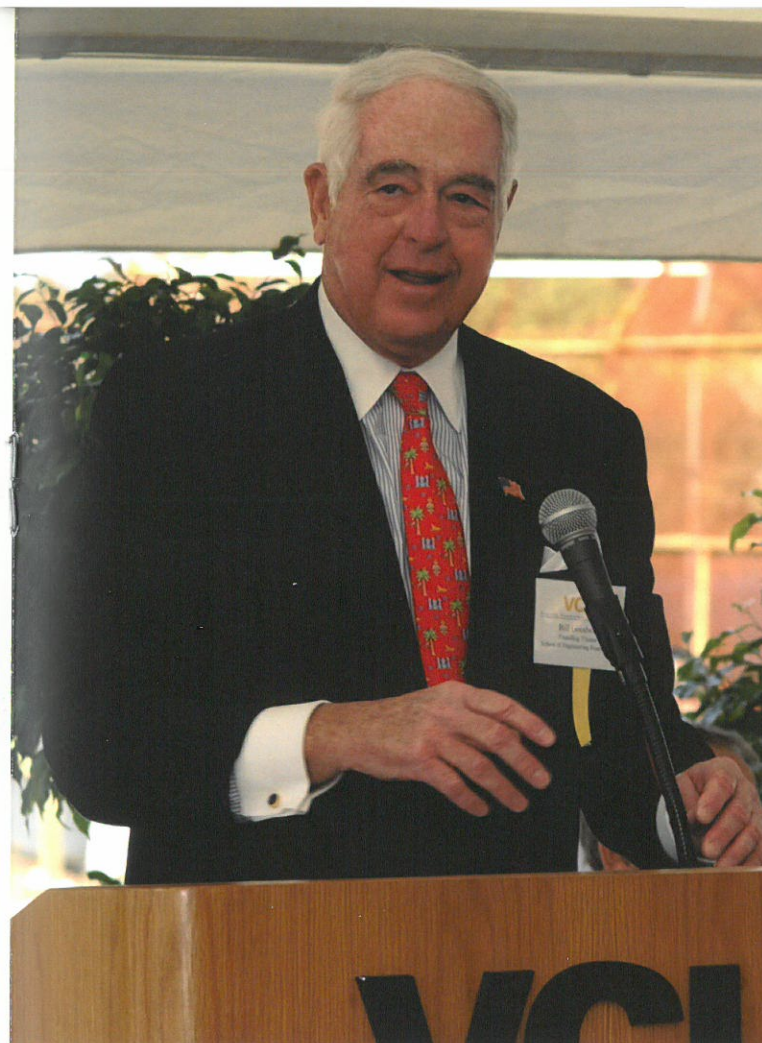
Above and beyond

Stanley and Dorothy Pauley's recent \$4 million commitment to the School of Engineering campaign gave a great push toward the goal. "Stan and Dorothy Pauley are stalwart supporters of VCU," said VCU President Eugene P. Trani. "Their leadership in the Richmond community is exemplary and their support of the VCU School of Engineering is exceptional."

Philip Morris USA's gift of \$2.2 million to VCU supports the campaigns for the schools of Business and Engineering. In addition to the cash donation of \$1 million to each school, Philip Morris USA also donated nearly \$225,000 in rapid prototyping equipment to the School of Engineering, which will afford undergraduate students the opportunity for hands-on experience with advance design.

"This donation from Philip Morris USA enhances VCU's continued commitment to provide our business community with competitive and motivated engineers and business executives who have great technical skills, an appreciation for the value of research and development and a good understanding of business and marketing," said VCU President Eugene P. Trani.

Michael E. Szymanczyk, chairman and CEO, Philip Morris USA, also feels the need for business and education to combine efforts, "This partnership is consistent with Philip Morris USA's focus on education, particularly workforce development and economic revitalization of downtown Richmond. We value VCU's collaborative approach to preparing a highly-qualified workforce and its contributions to the economic transformation of our city — a commitment shared by Philip Morris USA through our investment in the new Center for Research and Technology."



Groundbreaking

The groundbreaking ceremony for the new 240,000-square-foot facility that will house the expansion of the School of Engineering and the School of Business was held Nov. 1, 2005. More than 300 students, alumni, faculty, trustees and other friends gathered at the corner of Belvidere and Main streets for this historic event.

William H. Goodwin speaks to the audience at the Monroe Park Campus expansion groundbreaking ceremony.

The platform party (shown below, from left) included VCU Board of Visitors Rector Edward Bersoff, Mayor L. Douglas Wilder, School of Engineering Foundation Chair and Founding Trustee William H. Goodwin, VCU President Eugene P. Trani, State Sen. Walter Stosch, U.S. Congressman Robert "Bobby" Scott, School of Engineering Dean Robert J. Mattauch, School of Business Dean Michael Sesnowitz and the School of Business' Executive Leadership Committee Chair Steve Markel.



Class notes

Innovation matters

words | Sathya Achia-Abraham, University News Services

Transistors, the Internet, CAT scans and light-emitting diodes are considered among the top engineering innovations of our time. That means it takes more than knowing how to work calculus problems and plug in the right equations to be an engineer. It takes an eye for design and a mind for innovation to create scientific devices or technologies and turn them into something that can truly impact people's lives.

Just ask the seniors from the Virginia Commonwealth University School of Engineering who recently participated in the 2006 Senior Design Showcase to unveil their senior design projects, which included a human-powered submarine, an unmanned helicopter, a miniature Indy-style racecar and an unmanned boat for lake-bottom profiling.

Nearly 50 student-teams participated in this year's showcase on April 28. Engineering and computer-science students demonstrated and discussed their projects with advisers, classmates, family and friends.

"Through the senior design project, our students have the opportunity to work together, have fun together and create together. We salute the designs and creativity of our students," said Robert J. Mattauch, Ph.D., former dean of the VCU School of Engineering. "Innovation matters — so keep innovating."

The showcase provides an opportunity for students to participate in their chosen field of study by completing a high-caliber, hands-on design project. The annual event is the culmination of eight months of effort for students representing the school's different departments: Biomedical, Chemical and Life Science, Electrical and Computer, and Mechanical Engineering, as well as the Department of Computer Science.

"Our students never cease to amaze me with their drive, creativity and enthusiasm for their work and their education," said Barton B. Cregger, associate dean of the VCU School of Engineering.



More than 40 teams displayed projects at the showcase.

Several projects were deemed Best in Class:

PVC Production Plant, Vinyl Chloride Recovery System

Eric Daniel, Giancarlo di Fazio and Kevin Dofflemyer
Advisers: Gary Huvard, Ph.D., and Kenneth Wynne, Ph.D.

PocketDoc

William Calder, Joanne Cunningham, Brooks Hollar and Brandon Saunders
Advisers: David Primeaux, Ph.D., and Jeff Babb

Voice Command In-Home Automation

Daniel Camp, Patrick Hawks and Adam Kunicki
Adviser: Esther Hughes, Ph.D.

Design of a Cyclic Fatigue Machine for Analysis of Blender Blade Design

Anthony Dollins and Jessica Pruden
Adviser: John Speich, Ph.D.

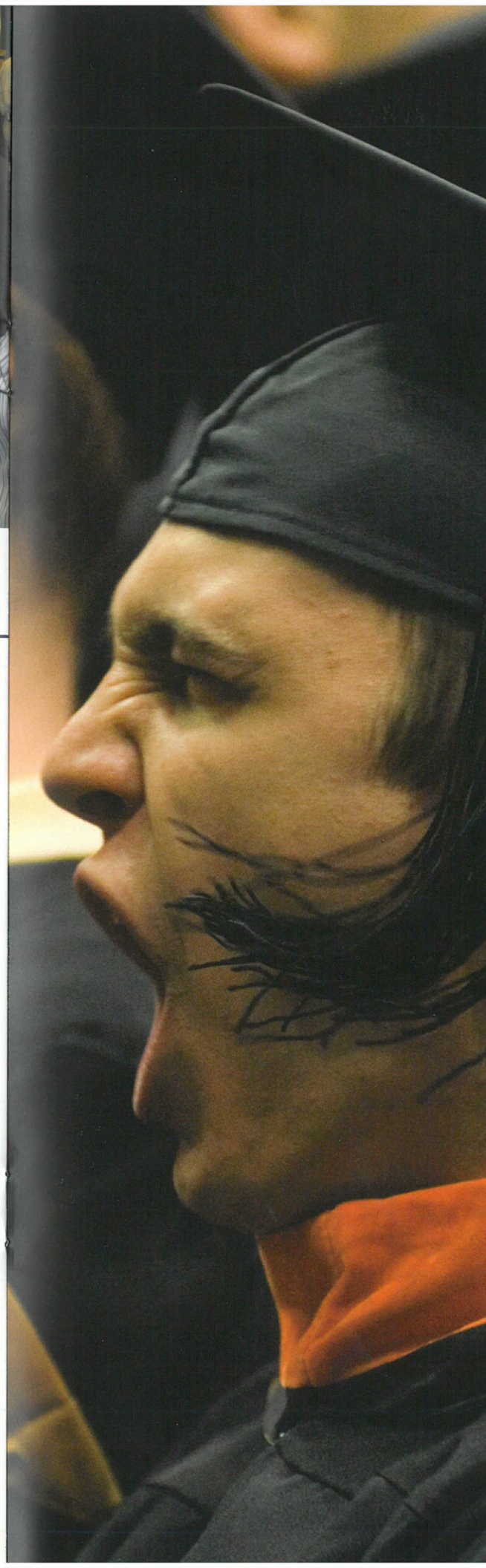
Additionally, Gabe Goldman, a mechanical engineering student, was recognized at the reception for his dedication during the past several years to the FIRST Robotics competitions and the founding of the VCU Robotics Student Club.

This year's event was sponsored by the Verizon Foundation.

Largest class graduates

The School of Engineering conferred degrees to 167 students in May, the seventh and largest class to graduate. Family and friends gathered at the Greater Richmond Convention Center on the evening of May 19, 2006, for the diploma ceremony. Aneesh Chopra, secretary of technology for the commonwealth of Virginia, gave the keynote address at the ceremony.

Dean Robert J. Mattauch presented the Dean's Award for Distinguished Service to William W. Berry, founding trustee of the School of Engineering and retired CEO and chair of Dominion Resources Inc. and Virginia Power. A special tribute was made in memory of Karl Linn, a member of the Class of 2006 who was killed in action in January 2005 while serving his country in Iraq. VCU Commencement was held May 20, 2006, at the Richmond Coliseum.



From left: Isabel Howell, Andrew Howell '01, Chris Hang '01, April Serrano and alumni board member Jason Gareau '02.

Class of 2001 reunites!

The Class of 2001 held its fifth-year reunion at the School of Engineering on May 20, 2006. Classmates and their spouses and guests gathered in the courtyard for an evening reception. During this event, Dr. Robert J. Mattauch reflected on the early years and spoke about the tremendous progress the school continues to make. He congratulated the members of the Class of 2001 for their many successes.

Alumni updates

Please send updates about your professional and personal achievements to Anita Hazel at ardavis@vcu.edu or P.O. Box 843068, Richmond, VA 23284-3068. Please update your current home, business and e-mail addresses so you will continue to receive newsletters, as well as invitations to receptions and other events.

2001

Rizwan E. Ahmed, EE, received a master's degree from Stanford University and is now employed with Qualcomm Inc. in San Diego, Calif., as a member of the Modem Technologies Systems group.

Dr. Brian G. Baird, CSC, was board-certified in pharmacotherapy in 2001 and accepted a position as the director of a pharmacy residency program in 2002.

Brad A. Crosby, ChE, was honored by VCU in November as the School of Engineering's Alumni Star for his dedication and service to the school and the alumni board.

Justin S. Jones, ME, is currently in his second year of a Ph.D. program in materials science and engineering at Johns Hopkins University in Baltimore. His research is in the field of ultrasonics and wave propagation, with an effort to characterize the fundamental contributions of elastic nonlinearities in the grain boundaries of materials.

Rebecca Zona Schmidt, ME, and her husband Marc recently had their first child. Rebecca is a weapons systems engineer, specializing in flight performance assessment, threat analysis and aerodynamics for Technology Service Corporation in Silver Spring, Md. She is currently pursuing an advanced degree in mechanical and aerospace engineering at George Washington University.

Andy Young, ChE, has been accepted to the Colorado School of Mines in Golden, Colo., where he will pursue a Ph.D. in Chemical Engineering.

2002

Allison Faucette Richmond, BME, is currently working as a research associate at Tengion Inc., a start up regenerative medicine company located in Winston-Salem, N.C. The company was



VCU President Eugene P. Trani congratulates Brad Crosby, ChE '01 (left), who was honored as the School of Engineering's Alumni Star at the university's gala event in November 2005. Crosby serves as president of the School of Engineering's Alumni Board and serves on the university's Young Alumni Council.

founded by Dr. Anthony Atala, a leader in the field of regenerative medicine, and has received the largest amount of A-round venture capital financing of any biotech company in history. Allison is currently working with the Bioprocess R&D group at Tengion as they prepare for clinical trials. She says, "It is a really

great company to work for in the way the upper-level management interacts with the researchers. Our products have the potential to greatly improve people's lives, so it is definitely exciting coming to work every day knowing that potential is on the horizon."

2003

David L. Keeton, BME, is in dental school at the University of Kentucky.

Will H. Lawrence, CE, coached the entire girls' and boys' sprinters and jumpers teams for the 2005 preseason at Carnegie Mellon. He is the co-founder of the Blue Castle Group, a technology consulting company.

William Aaron Pruett, ChE, is working on research regarding scaling of the freezing and thawing of pharmaceutical bulks.

Pamela R. Puthoor, BME, is in her second year at the University of Rochester Medical School in Rochester, N.Y.

2004

Joanne M. Cunningham, CSC, is a graduate student in the computer science program at VCU.

Jason "Groo" Van Gumster, CE, and three partners started a media production studio, Hand Turkey Studios, specializing in animation, video production and print design. Recently, Jason was mentioned in a Richmond Times-Dispatch article in relation to the studio and another project he has launched.

2005

Erin V. Boutwell, BME, is pursuing her Ph.D. in biomedical engineering at Northwestern University.

Heather Kyle, CpE, and **Dean Lewis, CpE**, were married in August and have moved to Atlanta. Dean is pursuing his Ph.D. in Computer Engineering at Georgia Tech.

Ashley S. Perkins, CSC, is a software engineer at Xperts, Inc., a firm specializing in IT staffing, consulting and development.

In memoriam

Virginia Commonwealth University's School of Engineering would like to take a moment to remember two of our students who passed away earlier this year.

Jonathan Wayne Cole
Richmond, Va.
April 5, 2006

Karl Richard Linn
Richmond, Va.
Jan. 25, 2006

Faculty news

Publications and awards

Supriyo Bandyopadhyay

professor, electrical and computer engineering

Scholarly publications

- Y. Wang, S. Ramanathan, Q. Fan, F. Yun, H. Morkoc and S. Bandyopadhyay, "Electric field modulation of infrared absorption at room temperature in electrochemically self assembled quantum dots," *J. Nanosci. Nanoetch.*, 6, 2077 (2006).
- A. Varfolomeev, D. Zaretsky, V. Pokalyakin, S. Tereshin, S. Pramanik and S. Bandyopadhyay, "Admittance of CdS nanowires embedded in porous alumina template," *Appl. Phys. Lett.*, 88, 113114 (2006).
- S. Bandyopadhyay and S. Sarkar, "Infrared absorption in a quantum wire in the presence of spin-orbit interaction: an optical technique to measure the spin-orbit interaction strength," *Appl. Phys. Lett.*, 88, 183108 (2006).
- N. Biyikli, J. Xie, Y.-T. Moon, F. Yun, C.-G. Stefanita, S. Bandyopadhyay, H. Morkoc, I. Vurgaftman and J.R. Meyer, "Quantitative mobility spectrum analysis of AlGaIn/GaN heterostructures using variable-field hall measurements," *Appl. Phys. Lett.*, 88, 142106 (2006).
- S. Pramanik, S. Bandyopadhyay and M. Cahay, "Spin relaxation of 'upstream' electrons in a quantum wire: Failure of the drift diffusion model," *Phys. Rev. B.*, 73, 125309 (2006).
- T. Basu, S. Sarkar and S. Bandyopadhyay, "Single spin logic circuits," *Phys. Low Dim. Struct.*, 2, 69 (2006).
- T. Basu, S. Sarkar and S. Bandyopadhyay, "Design of a single spin arithmetic logic unit," *Proc. IEEE: Circuits, Dev. and Syst.* (in press).
- S. Patibandla, S. Pramanik, G.C. Tepper and S. Bandyopadhyay, "Spin valve effect in Germanium nanowires," *J. Appl. Phys.*, 100, 044303 (2006).
- S. Pramanik, C.-G. Stefanita and S. Bandyopadhyay, "Spin transport in an all metal spin valve: A study of the pure Elliott-Yafet mechanism," *J. Nanosci. Nanotech.*, 6, 1973 (2006).
- S. Bandyopadhyay, "Power dissipation in spintronic devices: A general perspective," invited review in *J. Nanosci. Nanotech* (in press).
- J. Wan, M. Cahay and S. Bandyopadhyay, "Can a non-ideal metallic ferromagnet inject spin into a semiconductor with 100% efficiency without a tunnel barrier?" *J. Nanoelectron. Optoelectron.*, 1, 62 (2006).
- S. Ramanathan, S. Bandyopadhyay, J.D. Edwards and J. Anderson, "Fluorescence and infrared spectroscopy of electrochemically self

assembled ZnO nanowires: Evidence of the quantum confined Stark effect," *J. Mat. Sci.* (invited) (in press).

S. Ramanathan, L.K. Hussey, M. Munoz and S. Bandyopadhyay, "Observation of numerous E² mode phonon replicas in the room temperature photoluminescence spectra of ZnO nanowires: Evidence of strong electron-non-polar phonon coupling," *Appl. Phys. Lett.* (in press).

Lectures and presentations

- S. Bandyopadhyay, "Spintronics: A New Device Paradigm," invited talk at Electronic and Photonic Materials, Devices and Systems Conference, Calcutta University Science College, Kolkata, India, Jan. 4, 2006.
- S. Bandyopadhyay, "Spintronic Quantum Computing," IEEE Electron Device Society Distinguished Lecture at the IEEE EDS Chapter, Jadavpur University, Kolkata, India, Jan. 9, 2006.
- S. Bandyopadhyay, "Towards the realization of a self assembled cellular non-linear network," invited lecture at the Workshop on Computation in Nanoscale Dynamical Systems, Santa Fe, N.M., Jan. 19-20, 2006.
- S. Bandyopadhyay, "Quantum Computing Research at Virginia Commonwealth University," invited talk presented at the Workshop on Nanocomputation, Virginia Tech, Blacksburg, Va., May 10, 2006.
- S. Bandyopadhyay, "Quantum Neuromorphic Networks," plenary talk at the Virginia Nanotech Conference, Newport News, Va., June 12, 2006.
- S. Bandyopadhyay and Gary C. Tepper, "Computing, Detecting, Storing and Monitoring with Quantum Dots," invited talk at the Eighth International Conference on Nanostructured Materials, Indian Institute of Science, Bangalore, India, August 2006.
- S. Bandyopadhyay, "Multifunctional Nanowires," invited talk at the 2006 International Electron Devices and Materials Symposia, Tainan, Taiwan, December 2006.

Research grants

- NSF: NIRT: Collective Computation with Self Assembled Nanowires, \$1,000,000 (7/05-6/09) with K. Karahaliloglu (VCU), P. Mazumder (Univ. of Michigan, Ann Arbor) and K. Wang (UCLA).
- AFOSR: Spin Based Optical and All Electronic Quantum Computing, \$2,053,000 (4/04 – 4/07) with A. Baski, S. Khanna and H. Morkoc.
- NSF: GOALI: Self Assembled Arrays of Rare Earth Sulfide Nanowires, \$120,000 (7/05-6/08).

Sentor Technologies: A Sensor for Dipicolinic Acid Based on Quantum Confined Stark Effect, \$20,000 (6/06-12/06).

Brookhaven National Laboratory: A Spintronic Gamma Ray Detector, \$100,000 (8/1/06-2/28/07) with G.C. Tepper.

NSF: PFI: VA-NETT Nanotechnology Workforce Development, \$84,000 (5/06-4/07).

NSF: NER: Organic nano-spintronics, \$45,000 (6/1/06 -5/31/07).

Honors and awards

Fellow, Institute of Electrical and Electronics Engineers

Fellow, American Physics Society

Fellow, Institute of Physics (UK)

Fellow, Electrochemical Society

Distinguished lecturer, Institute of Electrical and Electronics Engineers

Electron Device Society

Profiled in several Who's Who

Ding-Yu Fei

associate professor, biomedical engineering

Scholarly publications

- Fei, D.Y., Arena R., Arrowood, J.A., Kraft, K.A., "Relationship between arterial stiffness and heart rate recovery in apparently healthy adults," *Vascular Health and Risk Management*, 1, 85-89, 2005.
- Arena R., Arrowood J., Fei D., Shao X., Kraft K. "Effect of aerobic exercise training on aortic wave velocity in obese subjects: A report of five cases." *Case Reports and Clinical Practice Review*. 6:211-215, 2005.

Lectures and presentations

- Rafiq A., Fei D.Y., Zhao X., Hummel R., Merrell R., "Development of Triage and Casualty Informatics Tool for Mass Casualty Incidents," *Medicine Meets Virtual Reality Conference*, Long Beach, Calif., 2006.
- Fei D.Y., Arena R., Arrowood J., Chang Y., Kraft K. "Relationship between arterial stiffness and heart rate recovery in apparently healthy adults." *American Heart Association: Sixth Scientific Forum on Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke*, Washington, D.C., 2005.

Research grants

Co-investigator (PI, Dr. Ronald C. Merrell) for grant from NASA: Astronaut Information Management System for Mission Based.

Stephen S. Fong

assistant professor, chemical and life science engineering

Scholarly publications

- Fong, S.S., Perrenoud, A., Palsson, B.O., Sauer, U. 2005. "Latent pathway activation and increased pathway capacity enable *Escherichia coli* adaptation to loss of key metabolic enzymes." *Journal of Biological Chemistry*. 281(12): 8024-8033.

Fong, S.S., Joyce, A.R., Palsson, B.O. 2005. "Parallel adaptive evolution cultures of *Escherichia coli* lead to convergent phenotypes with different expression states." *Genome Research*. 15:1365-1372.

Lectures and presentations

- Fong, S.S., Burgard, A.P., Maranas, C.D. and Palsson, B.O. "Metabolic engineering of *Escherichia coli* through in silico design and experimental evolution," *Annual American Institute of Chemical Engineers Meeting*, November 2005, Cincinnati, Ohio.
- Fong, S.S. and Palsson, B.O. "New Dimensions in Genome Annotation," *Second European Conference on Prokaryotic Genomes*, September 2005, Gottingen, Germany. (Invited)

Mark A. McHugh

professor, chemical and life science engineering

Scholarly publications

- Churchley, D., Barbu, E., Ewen, R.J., Shen, Z., Kim, Y.C., McHugh, M.A., Zhang, Z.Y., Nevell, T.G., Rees, G.D., and J. Tsibouklis, "Low surface-energy fluoropolymers as barrier coatings for dental care," *Biomaterials*, submitted (2006).
- Shen, Z., Li, D., Kim, Y., and M.A. McHugh, "Solubility of pyrazine and its derivatives in supercritical carbon dioxide," *Journal of Chemical and Engineering Data*, in press (2006).
- Liu, J., Kim, Y.C., and M.A. McHugh, "Phase behavior of the vanillin-CO₂ system at high pressures," *Journal of Supercritical Fluids*, in press (2006).
- Liu, J., Kim, Y.C., and M.A. McHugh, "Phase behavior of diisobutyl adipate-carbon dioxide mixtures," *Fluid Phase Equilibria*, 248, 44-49 (2006).
- Wright, M.E., Gorish, C.E., Shen, Z., and M.A. McHugh, "2,5-Dichloro-1-(ROSO₂)benzene [R = C₆H₅, C₆F₅, and CH₂(CF₃)₄H]: Synthesis, molecular structure, and solubility in supercritical CO₂," *Journal of Fluorine Chemistry*, 127, 330-336 (2006).
- Kostko, A.F., McHugh, M.A., and J.H. van Zanten, "Coil-coil interactions for poly(dimethyl siloxane) in compressible supercritical CO₂," *Macromolecules*, 39, 1657-1659 (2006).
- Shen, Z., Lott, K.M., Wright, M.E., and M.A. McHugh, "Impact of configuration and fluorination on the solubility of octyl ester benzoate dimers in CO₂," *Fluid Phase Equilibria*, 238, 210-219 (2005).
- DiNoia, T.P., Park, I.H., McHugh, M.A., and J.H. van Zanten, "Observation of polymer chain contraction near the overlap concentration," *Macromolecules*, 38, 9393-9395 (2005).
- Shen, Z., McHugh, M.A., Smith, D.W., Abayashinghe, N.K., and J. Jin, "Impact of hexafluoroisopropylidene on the solubility of aromatic-based polymers in supercritical fluids," *Journal of Applied Polymer Science*, 97, 1736-1743 (2005).
- Li, D., McHugh, M.A., and J.H. van Zanten, "Density induced phase separation in poly(ethylene-co-1-butene)-dimethyl ether solutions," *Macromolecules*, 38, 2837-2843 (2005).



From left: State Sen. Russ Potts, Virginia Gov. Tim Kaine and Dr. James T. McLeskey Jr., assistant professor of mechanical engineering at VCU. McLeskey was recognized Feb. 23 as one of 15 outstanding faculty members from Virginia's public and private colleges and universities by Kaine for his teaching, research, knowledge integration and public service. The recipients were selected from a pool of 87 candidates nominated by their peers. The Outstanding Faculty Awards are administered by the State Council of Higher Education for Virginia and funded by a grant from the Dominion Foundation.

Lectures and presentations

M.A. McHugh and Jun Liu, "What does it take to process fluoropolymers in supercritical fluid solvents," Invited tutorial talk, ACS meeting, Washington, D.C., August 2005.

Dan Li, Andrei Kostko, Mark A. McHugh and John H. van Zanten, "Density induced phase separation in high pressure, polymer-SCF solvent solutions," Thermodynamics 2005, Sesimbra, Portugal, April 2005.

Research grants

DAI-ACT: Processing fluoropolymers with supercritical fluid solvents, \$751,412 (6/01-9/07); and American Chemical Society (PRF): Dynamic light scattering studies of polymer-supercritical fluid mixtures, \$80,000 (6/03-5/05).

Gerald E. Miller
chair, biomedical engineering

Scholarly publications

G.E. Miller, "Artificial Organs," Morgan and Claypool Publishers, 2006.

G.E. Miller, "Sensory Organ Replacement and Repair," Morgan and Claypool Publishers, 2006.

G.E. Miller, "Tools for Sensor-Based Performance Assessment and Hands-Free Control," in "Medical Instrumentation: Accessibility and Usability Considerations," J. Winters, editor, CRC Press, Taylor & Francis Publishers, 2006.

Polur, P.D. and Miller, G.E., "Experiments with fast Fourier transform, linear predictive and cepstral coefficients in Dysarthric speech recognition algorithms using hidden Markov Model," IEEE Trans Neural Syst Rehabil Eng. 2005 Dec;13(4):558-61.

Polur, P.D. and Miller, G.E., "Investigation of an HMM/ANN hybrid structure in pattern recognition application using cepstral analysis of dysarthric (distorted) speech signals," Med Eng Phys. 2006 Oct;28(8):741-8. Epub 2005 Dec 15.

Polur, P.D. and Miller, G.E., "Effect of high-frequency spectral components in computer recognition of dysarthric speech based on a Mel-cepstral stochastic model," J Rehabilitation Res & Dev. 2005 May-Jun;42(3):363-71.

Lectures and presentations

Research planning seminar for VCU faculty, 2006, sponsored by the VCU Center for Teaching Excellence.

Honors and awards

Co-editor, American Society of Mechanical Engineers, Journal of Medical Devices

Track manager, Biomedical and Safety Systems, ASME International Congress

Track manager, Homeland Security, ASME International Congress

Fellow, American Institute for Medical and Biological Engineering

Fellow, American Society of Mechanical Engineers

Ramana M. Pidaparti
professor, mechanical engineering

Scholarly publications

Developed a custom edition for EGRM 420 – CAE – Design course in Mechanical Engineering titled "Computer Aided Engineering – Design, Principles, and Mechanisms," ISBN 0-536-98476-X, 2005.

R.M. Pidaparti, W.P. Longest, A.T. Hsu and H.U. Akay, "Nanoscale Computational Analysis for an Idealized Bio-molecular Motor," Bulletin of the Polish Academy of Sciences, Vol. 53, No. 4, pp. 405-412, 2005. (Invited Paper).

R.M. Pidaparti, A. Puri, M.J. Palakal and A. Kashyap "Two-dimensional Corrosion Pit Initiation and Growth Simulation Model," Journal of Computers, Materials, and Continua, Vol. 2, No. 1, pp. 65-76, 2005.

R.M. Pidaparti and F. Kadioglu, "Design Analysis of a MEMS Bio-fluidic Device Concept," In Proceedings of the 2005 MEMS and Semiconductor Nanotechnology, IIT Kharagpur, India, Dec. 20-22, 2005.

R.M. Pidaparti, M.J. Palakal and L. Fang "Cellular Automata Approach to Aircraft Corrosion Growth," International Journal on Artificial Intelligence Tools, Vol. 14, Nos. 1 & 2, February & April, pp. 361-369, 2005.

F. Kadioglu and R.M. Pidaparti, "Composite Rebar Shape Effect in Reinforced Structures," Journal of Composite Structures, Vol. 67, pp. 19-26, 2005.

Ramana M. Pidaparti, Evan Neblett, Worth P. Longest and Mohamed Gad-el-Hak, "Biologically Inspired Motors for Micro-Air-Vehicles," In Proceedings of the Infotech@Aerospace 2005, Arlington, Va., Sept. 26-29, 2005.

W.P. Longest and R.M. Pidaparti, "Modeling Particle Hydrodynamic Transport in an Idealized Nanoscale Bio-Motor," In Proceedings of the 2005 NSTI NanoTechnology Conference and Trade Show, Anaheim, Calif., May 8-12, 2005.

E. Coles, P. Fox, S. Hundley, C. Grossman and R. Pidaparti, "A Model for Global Sustainable Education in Engineering and Technology: An Interdisciplinary and Multicultural Approach," INNOVATIONS 2005: World Innovations in Engineering Education and Research, Edited by W. Aung, R.W. King, J. Moscinski, S. Oh, L.M. Ruiz, Begell House Publishing, pp. 459-468, 2005.

Lectures and presentations

Ramana M. Pidaparti and Evan Neblett, "Bio-inspired Motor Concept for Micro-Air-Vehicles," presentation at the AIAA Mid-Atlantic Mini-Conference, Nov. 5, 2005, Baltimore, Md.

Evan Neblett and Ramana M. Pidaparti, "Corrosion Damage Simulation in Aircraft Materials and Structures," presentation at the AIAA Mid-Atlantic Mini-Conference, Nov. 5, 2005, Baltimore, Md.

W.P. Longest and R.M. Pidaparti, "Modeling Particle Hydrodynamic Transport in an Idealized Nanoscale Bio-Motor," poster presentation, Proceedings of the 2005 NSTI NanoTechnology Conference and Trade Show, Anaheim, Calif., May 8-12, 2005.

Ramana M. Pidaparti, Evan Neblett, Worth P. Longest and Mohamed Gad-el-Hak, "Biologically Inspired Motors for Micro-Air-Vehicles," presentation at the Infotech@Aerospace 2005, Sept. 26 – 29, 2005, Arlington, Va.

Ramana M. Pidaparti, "Bridging Two Cultures: Nano and the Bio," presentation at the National Science Foundation, CMS Division, March 2005.

Research grants

U.S.-Egypt Workshop: Predictive Methodologies for Global Weather Related Disasters, March 2006, Cairo, Egypt, \$35,000, (10/1/05-12/30/06) National Science Foundation, PI (Co-PI – Dr. Gad-el-Hak).

National Science Foundation, \$288,618, (8/1/05-7/31/08) Evolution of Chemical Elements Degradation due to Corrosion in Metals, PI.

National Science Foundation, \$221,806, (3/24/05-2/23/06) Three-dimensional Surface Corrosion Growth Model for Materials Design, PI.

U.S.-Tunisia-Turkey Cooperative Research: Developing Durable Composite Systems for Industrial and Infrastructure Applications, \$13,319, (11/24/04-5/23/07) National Science Foundation, PI.

Honors and awards

ASME fellow; member, Technical Committee on "Intelligent Systems," AIAA

Other news

Research is being conducted on the following projects: design synthesis of composite panels from recycled aluminum cans for low cost housing (possible funding from EPA and DOE, local companies); design and development of multifunctional devices mimicking nanoscale biological motors (possible funding from DOE and NSF); and novel nano-scale materials from self-organizing collagen/DNA fibers (possible funding from AFOSR and NSF). Supervising students for the following senior design projects: basic utility vehicle, windmill composite rotor design, shelter design for hurricane Katrina victims and suspension system design for Formula SAE car.

John E. Speich
assistant professor, mechanical engineering

Scholarly publications

Call, C., Han, S., Speich, J., Eddinger, T. and Ratz, P. "Resistance to Pressure-Induced Dilatation in Femoral But Not Saphenous Artery: Physiological Role of Latch?" American Journal of Physiology: Heart and Circulatory Physiology, vol. 291, no. 4, pp. H1513-H1520, 2006.

Han, S., Speich, J., Eddinger, T., Berg, K., Miner, A., Call, C. and Ratz, P. "Evidence for Absence of Latchbridge Formation in Muscular Saphenous Arteries." American Journal of Physiology: Heart and Circulatory Physiology, vol. 291, no. 1, pp. H138-H146, 2006.

Speich, J., Quintero, K., Dosier, C., Borgsmiller, L., Koo, H. and Ratz, P. "A Mechanical Model for Adjustable Passive Stiffness in Rabbit Detrusor." Journal of Applied Physiology, vol.101, no. 4, pp. 1189-1198, 2006.

McLeskey, J., Speich, J., Richardson, J. and Gad-el-Hak, M. "Evaluation of an Experiential Engineering Library." International Journal of Engineering Education, vol. 22, no. 2, pp. 247-256, 2006.

Speich, J., Borgsmiller, L., Call, C., Mohr, R. and Ratz, P. "ROK-Induced Crosslink Formation Stiffens Passive Muscle: Reversible Strain-Induced Stress Softening in Rabbit Detrusor." American Journal of Physiology: Cell Physiology, vol. 289, pp. C12-C21, 2005.

Speich, J., Cagle, Y., Rafiq, A., Merrell, R., Doarn C. and Broderick, T. "Evaluation of Surgical Skills in Microgravity Using Force Sensing." Medical Engineering and Physics, vol. 27, no. 8, pp. 687-693, 2005.

Speich, J., Shao, L. and Goldfarb M. "Modeling the Human Hand as it Interacts with a Telemanipulation System." Mechatronics, vol. 15, no. 9, pp. 1127-1142, 2005.

McJunkin, S., Speich, J. and O'Malley, M. "Transparency Extension in Haptic Interfaces Via Adaptive Dynamics Cancellation." In Proceedings of the ASME International Mechanical Engineering Congress and Exposition, November 2005.

McJunkin, S., O'Malley, M. and Speich, J. "Transparency of a Phantom Premium Haptic Interface for Active and Passive Human Interaction," In Proceedings of the 2005 American Control Conference, 2005.

Speich, J. and Goldfarb, M., "An Implementation of Loop-Shaping Compensation for Multi-Degree-of-Freedom Macro-Micro Scaled Telemanipulation." IEEE Transactions on Control Systems Technology, vol. 13, no. 3, pp. 459-464, 2005.

Speich, J., McLeskey, J., Richardson, J. and Gad-el-Hak, M. "The Experiential Engineering Library." International Journal of Engineering Education, vol. 20, no. 4, pp. 1022-1033, 2004.

McLeskey, J., Speich, J., Richardson, J. and Gad-el-Hak, M. "The Creation of an Experiential Engineering Library." In Proceedings of the ASEE 2004 Annual Conference and Exposition, June 2004.

Panait, L., Broderick, T., Rafiq, A., Speich, J., Doarn, C.R., Merrell, R.C. "Measurement of laparoscopic skills in microgravity anticipates the space surgeon." American Journal of Surgery, vol. 188, no. 5, pp. 549-552, 2004.

Lectures and presentations

Speich, J. "Characterization and Modeling of Adjustable Passive Stiffness in Detrusor Smooth Muscle." Invited seminar, Department of Biological Sciences Seminar Program, Marquette University, Milwaukee, Wis., Sept. 15, 2006.

Speich, J., Dosier, C., Quintero, K. and Ratz, P. "Dynamic Shifting of the Passive Length-Tension Curve for Rabbit Detrusor Smooth Muscle." Presented at the 2006 ASME Summer Bioengineering Conference, Amelia Island, Fla., June 2006.

Speich, J., Quintero, K., Dosier, C., Ratz, P. "Modeling and Characterization of Dynamic Passive Stiffness in Rabbit Detrusor Smooth Muscle." Poster presentation at the 2006 Biophysical Society Annual Meeting, Baltimore, Md., February 2006.

Speich, J., Borgsmiller, L., Call, C., Mohr, R. and Ratz, P. "Reversible Strain Softening Behavior in Rabbit Detrusor Smooth Muscle." Presented at the 2005 ASME Summer Bioengineering Conference, Vail, Colo., June 2005.

Speich, J., Quintero, K., Dosier, C., Hijaz, S., Bradford, J.C., and Ratz, P. "Modeling Reversible Strain Softening Behavior in Rabbit Detrusor Smooth Muscle." Poster presented at the 2005 Biomedical Engineering Society Annual Fall Meeting, September 2005.

Le, B., Speich, J., Rafiq, A. and Merrell, R., "Evaluation of Force Transmission during Telerobotic Surgical Training" Poster presented at the 2004 VCU Emerging Technologies Day, March 2004.

Le, B., Rafiq, A., Speich, J. and Merrell, R., "Use of Telerobotics in Laparoscopic Surgery." Poster presented at the 2004 Colonial

Academic Alliance Undergraduate Research Conference, University of Delaware, Newark, Del., February 2004.

Rafiq, A., Merrell, R., Speich, J., Doarn, C. and Broderick, T. "Evaluation of Virtual Reality Surgical Training in Microgravity." Presented at the 12th Annual Medicine Meets Virtual Reality Conference, Newport Beach, Calif., January 2004.

Gregory B. Tait

associate professor, electrical and computer engineering

Scholarly publications

Tait, G.B., Tepper, G.C., Pestov, D. and Boland, P., "Fiber Bragg Grating Multi-Functional Chemical Sensor," In Proceedings Vol. 5994, SPIE Sensors and Applications Symposium, Optics East 2005 (Boston, Mass.), October. 2005, pp. 599407: 1-11 (Invited paper).

Lectures and presentations

"Widely Tunable Laser for Sampled Fiber Bragg Grating Optical Nose/Tongue," OIDA NSF/DARPA Photonics Technology Access Program Workshop (Honolulu, Hawaii), July 2005.

Honors and awards

Member, Technical Program Committee for Photonics Sensing Technologies Conference, part of SPIE International Symposium on Optics (Boston, Mass.), October 2006

Jennifer S. Wayne

professor, biomedical engineering

Scholarly publications

Liacouras, P.C., Owen, J.R., Jiranek, W.A., Wayne, J.S.: "Evaluating the mechanical and polymerization characteristics of a modified bone cement." Journal of Arthroplasty, 21(4):606-611, 2006.

Owen, J.R., Wayne, J.S.: "Influence of a superficial tangential zone over repairing cartilage defects – Implications for tissue engineering." Biomechanics and Modelling in Mechanobiology (BMMB), 5(2-3):102-110, 2006. Invited submission.

Sharma, J.V., Liang, N., Owen, J.R., Wayne, J.S., Isaacs, J.E.: "Analysis of relative motion splint for zone VI extensor tendon injuries in the hand." Journal of Hand Surgery (American), 31(7):1118-1122, 2006.

Hull, J.R., Owen, J.R., Fern, S.E., Wayne, J.S., Boardman, N.D.: "Role of the coronoid process in varus osteoarticular stability of the elbow." Journal of Shoulder and Elbow Surgery, 14(4):441-446, 2005.

Wayne, J.S., McDowell, C.L., Shields, K.J., Tuan, R.S.: "In vivo response of PLA/Alginate scaffolds and bone marrow-derived cells for cartilage tissue engineering." Tissue Engineering, 11(5-6):953-963, 2005. (Manuscript figure selected for cover of appearing issue).

Sparrow, K.J., Finucane, S.D., Owen, J.R., Wayne, J.S.: "The effects of low intensity ultrasound on medial collateral ligament healing in the



Dr. Rosalyn S. Hobson, associate professor of electrical and computer engineering, was selected by the Richmond Joint Engineer's Council as Engineer of the Year. Hobson was recognized during the RJEC Annual Banquet on Feb. 23.

rabbit model." American Journal of Sports Medicine, 33(7):1048-1056, 2005.

Hadfield, M.H., Snyder, J.W., Liacouras, P.C., Owen, J.R., Wayne, J.S., Adelaar, R.S.: "The effect of medializing calcaneal osteotomy upon Achilles tendon length and foot pressures with and without superior translation." Foot and Ankle International, 26(5):365-370, 2005 (Winner of Roger Mann, M.D. award for best paper).

Marqueen, T.J., Owen, J.R., Nicandri G., Wayne, J.S., Carr, J.B.: "Comparison of the syndesmotic staple to the transsyndesmotic screw: A biomechanical study." Foot and Ankle International, 26(3):224-230, 2005.

Noble, A.R., Branham, D.B., Willis, M.C., Owen, J.R., Cramer, B.W., Wayne, J.S., Jiranek, W.A.: "Mechanical effects of the extended trochanteric osteotomy." Journal of Bone and Joint Surgery, 87:521-529, 2005.

Snyder, J.W., Owen, J.R., Wayne, J.S., Adelaar, R.S.: "Plantar pressure and load in the cadaveric foot following Weil or Chevron osteotomy." Foot and Ankle International, 26(2):158-165, 2005.

Lectures and presentations

Owen, J.R., Wayne, J.S.: "Superficial tangential zone effects on biomechanics of cartilage repair." Annual BMES Conference, Johns Hopkins University, October 2005 (Invited presentation).

Hadfield, M.H., Adelaar, R.S., Snyder, J.W., Liacouras, P.C., Owen, J.R., Wayne, J.S.: "The effects of a medializing calcaneal osteotomy with and without superior translation upon Achilles tendon strain and plantar foot pressures." International Federation of Foot and Ankle Societies Triennial Conference, Naples, Italy, September 2005.

Sharma, J.V., Liang, N., Owen, J.R., Wayne, J.S., Isaacs, J.E.: "Analysis of relative motion splint for zone VI extensor tendon injuries in the hand." Joint Annual Meeting of American Society for Surgery of the Hand and American Society of Hand Therapists, San Antonio, Texas, September 2005.

Owen, J.R., Wayne, J.S.: "Cartilage beneath a protective layer with strain dependent permeability – Implications for tissue engineering." 2005 Summer Bioengineering Conference, Vail, Colo., June 2005.

Liacouras, P.C., Wayne, J.S.: "Computational modeling of the foot/ankle complex." 2005 Summer Bioengineering Conference, Vail, Colo., June 2005.

Wartella, K., Wayne, J.S.: "Bioreactor for application of biaxial mechanical stimulation to tissue engineering constructs." 2005 Summer Bioengineering Conference, Vail, Colo., June 2005.

Research grants

Lifenet, Mechanical Performance of Preserved Femoral Bone Grafts NIH/NIAMS: In Vivo Survival of a Tissue Engineered Cartilage Construct.

NIH/NIBIB, 2005 Summer Bioengineering Conference.

Whitaker Foundation, 2005 Summer Bioengineering Conference.

DePuy, Inc., A Biomechanical Comparison of the Ace Reconstruction Plate vs Screw Fixation for Talonavicular Fusion.

Honors and awards

American Orthopaedic Foot and Ankle Society Roger Mann Award – co-author on awarded manuscript, 2004 (Receipt of this prestigious award also was highlighted in VCU School of Medicine Dean's Discovery Report in spring 2005.); Executive Board, finance chair, Bioengineering Division of American Society of Mechanical Engineers

Student accolades

Senior design student (2005-06), Andrew Cotter, working as a biomedical engineering with Lifenet. Senior design student (2004-05),

John Magruder, accepted into medical school at the University of Pennsylvania. Senior BME student (2004-05), Angela Weingarten, accepted as a post-baccalaureate intern with Dr. Wayne's colleague at NIH/NIAMS (Cartilage Biology and Orthopedics Branch).

Other news

Conference chair for the ASME 2005 Summer Bioengineering Conference with more than 800 attendees and 720 presentations, in Vail, Colo., June 2005. Head coach for two FIRST LEGO League robotics teams at Hening Elementary School, fall 2005. Each team went on to the November tournament at Maggie Walker Governor's School to win an award — one for their research project presentation and the other for their robot design.

Kenneth J. Wynne

professor, chemical and life science engineering

Scholarly publications

Olga A. Baturina, Steven R. Aubuchon and Kenneth J. Wynne, "Thermal Stability in Air of Pt/C Catalysts and PEM Fuel Cell Catalyst Layers," Chem. Mat., 2006, 18, 1498-1504.

U. Makal, L. Wood, D. Ohman, K.J. Wynne, "Polyurethane Biocidal Polymeric Surface Modifiers," Biomaterials, 2006, 27, 1316-1326.

U. Makal, T. Fujiwara, R.S. Cooke, K.J. Wynne, "Polyurethanes containing oxetane-derived poly(2,2-substituted-1,3-propylene oxide) soft blocks: copolymer effect on wetting behavior," Langmuir, 21 (23), 10749-10755, 2005.

Hongliu Sun, Robert S. Cooke, W. Douglas Bates and Kenneth J. Wynne, "Supercritical CO2 Processing and Annealing of Polytetrafluoroethylene (PTFE) and Modified PTFE for Enhancement of Crystallinity and Creep Resistance," Polymer, 46 (2005) 8872-8882.

Umit Makal and Kenneth J. Wynne, "Water Induced Hydrophobic Surface," Langmuir (Letter) 2005, 21(9), 3742-3745.

Suresh L. Shenoy, Tomoko Fujiwara, Sadashige Irie, Kenneth J. Wynne, "High Swelling of Poly(tetrafluoroethylene) by Supercritical CO2 Measured by the Linear Variable Differential Transducer (LVDT) Method," submitted for publication.

Umit Makal, Tomoko Fujiwara, Janelle Uilk, Pinar Kurt, Robert S. Cooke and Kenneth J. Wynne, "Ring Opening Polymerization of 3-Semifluoro and 3-Bromomethyl Oxetanes to 1,3-Propylene Oxide Telechelics and Use as Soft Blocks in Polyurethanes," Polymer, 2005, 46, 2522-2530.

Tomoko Fujiwara, Tetsuji Yamaoka, Yoshiharu Kimura and Kenneth J. Wynne, "Swelling and Foaming Process for Poly(lactide)s using Supercritical Carbon Dioxide," Biomacromolecules, 2005, 6(4), 2370-2373.

U. Makal, N. Uslu, K.J. Wynne, "Water Makes It Hydrophobic: Contraphilic Wetting for Polyurethanes with Soft Blocks Having Semifluorinated and 5,5-Dimethylhydantoin Side Chains," Langmuir, 2006; ASAP Article; DOI: 10.1021/1a0615600.

Stephen J. Grunzinger and Kenneth J. Wynne, "Polyurethanes from novel 1,3-propyleneoxide co-telechelics having pendant hydantoin and methoxymethyl groups," Polymer, 47 (11) 4230-4237, 2006.

Research grants

NSF Special Creativity Award (functional polymer surfaces); INSIC (Surface topology and morphology of magnetic tapes); NASA (fuel cells and battery research)

Honors and awards

NSF Special Creativity Award, summer 2005

Other news

The paper noted above Umit Makal and Kenneth J. Wynne, "Water Induced Hydrophobic Surface," Langmuir (Letter) 2005, 21(9), 3742-3745, is the fifth most frequently accessed paper of all papers published in this journal during 2005.

Hu Yang

assistant professor, biomedical engineering

Scholarly publications

Hu Yang, Weiyan John Kao, "Thermoresponsive gelatin/monomethoxy poly(ethylene glycol)-poly(D,L-lactide) hydrogels: Formulation, characterization, and antibacterial drug delivery application," Pharmaceutical Research (2006), 23 (1), 205-214.

Hu Yang, Weiyan John Kao, "Dendrimers for pharmaceutical and biomedical applications," Journal of Biomaterials Science, Polymer Edition (2006), 17(1-2), 3-19.

Hu Yang, Stephanie T. Lopina, "In vitro enzymatic stability of dendritic peptides," Journal of Biomedical Materials Research (2006), 76A(2), 398-407.

Hu Yang, Weiyan John Kao, "Dendrimers for Drug Delivery," Encyclopedia of Biomaterials and Biomedical Engineering, in press.

Lectures and presentations

Hu Yang, Weiyan John Kao, "Nanoscale dendritic clusters of RGD peptides," the Society for Biomaterials 2006 Annual Meeting and Exposition – Biomaterials: The Enabling Technology, Pittsburgh, Penn., April 2006.

Hu Yang, Stephanie T. Lopina, "PEG-PAMAM star polymers as a potential brain-targeted drug delivery scaffold," 30th Annual Meeting of the Society for Biomaterials, Memphis, Tenn., April 2005.

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Calendar

Events

October

- 13** Family Weekend
- 14** Admissions Open House
- 19** Alumni Phonathon
- 24** Alumni Phonathon
- 25** Alumni Phonathon

November

- 1** Alumni Phonathon
- 2** VCU School of Engineering Foundation Board Meeting
- 4** Admissions Open House
- 9** Senior Class Reception
- 17** Alumni Board Meeting

December

- 6** Holiday Open House
- 9** Commencement

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