



Dr. Gary A. Gabriele

NEW DEAN OF THE COLLEGE OF ENGINEERING

With the start of the new academic year, the College of Engineering welcomes the new Dean - **Dr. Gary A. Gabriele**. Dean Gabriele is the sixth dean of the College in its 100 year history.

Dean Gabriele was chosen from a field of more than sixty impressive candidates. He brings to Villanova a wealth of educational and professional experience. Since 2004 he has served as Division Director of the Engineering Education and Centers at the National Science Foundation in Washington, DC.

From 1984 through 2004, Dean Gabriele held numerous teaching and administrative positions at Rensselaer Polytechnic Institute in Troy, NY. In his most recent position of Vice

Provost for Administration and Dean of Undergraduate Education, he was responsible for the Center for Innovation in Undergraduate Education. He was charged with the stimulation of new undergraduate degree programs, including accelerated programs, international exchange programs and non-traditional educational opportunities for undergraduates. Dean Gabriele also had oversight of the Undergraduate Research Program including the development of external resources to maintain and support the program.

Dean Gabriele's industrial experience includes a position of associate scientist at Lockheed-Georgia Company from 1981 to 1984. He served in the U.S. Army at the U.S. Army Institute for Research in Management Information and Computer Science from 1977 to 1981.

Dean Gabriele received his bachelor's degree in 1973 from Norwich University, his Master's in 1975 and his Ph.D. in 1980 from Purdue University.

MESSAGE FROM THE DEAN

This is my first opportunity to address you as the Dean of the College of Engineering. As someone who has had a passion for engineering, teaching, and student development, I can't think of a better or more exciting opportunity than to serve Villanova's College of Engineering at this time in my career. In Villanova, I see a university that is committed to not just the academic preparation of its students, but just as equally the development of the whole student. In my opinion, this important distinction will enable Villanova's College of Engineering to prepare the engineers needed for this coming century.

Engineers play a very unique role in our society. While scientists seek to understand the natural world, engineers create the unnatural world in which we all live. Everything from the food we eat, the clothes we wear, the medicines we take, the music we listen to, the homes, buildings, roads and communications systems which we interact with everyday, all exist because some form of engineering was needed to make them happen.

Not many people realize how much engineers impact their everyday life, and most people would have a difficult time describing what engineers do. We are somewhat invisible, at least that is, until

we have a spectacular failure that reveals our own imperfections, the failure of the New Orleans levees being the most recent example. However, engineers are also responsible for much of the technology that has been so important to this country's economic growth and in its ability to lead the world in technological innovation. More importantly, engineers will play a very critical role in tackling the problems of energy, the environment, security, and health that we all face in the future.

But engineering is also facing a number of important challenges that need to be addressed for us to maintain a strong and innovative engineering workforce. Since the turn of the century, a number of factors have come together which have allowed companies to operate easily as global enterprises. This requires engineers to also work more globally now, often teaming with colleagues from around the world. Engineering is also threatened by its inability to attract a more diverse population of students to engineering programs. The traditional pool of engineering students comes from white males, which is a steadily decreasing portion of the U.S. population. But, more importantly, the problems that this country and the world will face will need innovative technological solutions that can best come from a more diverse and innovative engineering profession.

I believe that the institutions in the best position to lead the way on many of these issues are not the large research universities but rather those that have a culture of collaboration, a devotion to developing a complete engineering, and the ability to be innovative and agile. It will require institutions also who are able to see the education of engineers in this larger context, and be able to provide the innovative curricula that will provide the knowledge, skills, and experiences that will produce the engineers best able to meet these coming challenges. I believe the College of Engineering at Villanova can meet this challenge and I look forward to working with the faculty, students, and alumni in defining the College of Engineering's role in helping shape the future of engineering at Villanova.

ALFONSO ORTEGA ACCEPTS JAMES R. BIRLE ENDOWED CHAIR IN ENERGY TECHNOLOGY

Dr. Alfonso Ortega has accepted an invitation from the College of Engineering to hold the James R. Birle Endowed Chair in Energy Technology. Ortega, formerly a Professor in the Department of Aerospace and Mechanical Engineering at the University of Arizona, Tucson, and currently at the National Science Foundation, will begin his full-time teaching position in the College of Engineering in the fall 2006 semester.

Ortega earned both his doctorate in 1986 and his graduate degree in 1978 in mechanical engineering from Stanford University. His dissertation focused on "Experiments on Buoyancy-Induced Convection Heat Transfer from an Array of Cubical Elements on a Vertical Channel Wall." Ortega has done extensive research in his field and has published numerous books and articles for journals.

"Dr. Ortega is a world-class teacher-scholar and an outstanding match with the mission and culture of the University," said Mechanical Engineering Department Chair, **Dr. Gerard Jones, ME '72**. "We are honored to have him join the Mechanical Engineering Department and enthusiastically look forward to working together as we move ahead to the next level in the College of Engineering."

The James R. Birle Endowed Chair in Energy Technology was previously held by Dr. Edward V. McAssey, Jr.

James R. Birle, ME '58 has been a leader in the development of energy technology and has always maintained strong ties to Villanova University. An ardent supporter of research and education, he endowed the Chair in Energy Technology to the College of Engineering in 1995.



Dr. Alfonso Ortega



Brian Anderson's parents with Rev. John T. Denny O.S.A. who presided at the ceremony.



A yulan magnolia tree was planted adjacent to the main entrance of CEER in memory of Brian Anderson, EE 05. Photos courtesy of John Happ, EE '85

TREE PLANTED IN MEMORY OF BRIAN ANDERSON, BSEE '05

A Tree Planting Ceremony was held on May 1, 2006 in celebration of the life of **Brian M. Anderson '05**, a Villanova Electrical Engineer who tragically passed away on May 8, 2005 at age 21 from an undiagnosed heart arrhythmia. The yulan magnolia tree planted in his memory is located near the front entrance of the Center for Engineering Education and Research Building.

Rev. John T. Denny, OSA presided over the ceremony. Words in tribute of Brian's life were given by Dr. Pritpal Singh, Chairman, and Dr. Frank Mercede, Assistant Professor of the Electrical & Computer Engineering Department. Mr. Alexander Fazzini, CE

'74, Vice-President of the Villanova Engineering Alumni Society, offered words of comfort to the family members in attendance, and Mr. John Cacciola, CE '93, Facilities Management Director of Engineering, presented Brian's parents with a certificate about the tree planted in Brian's memory. Lynda Capuzzi, CE '71, Assistant Director of Academic Advising and Professional Development for the College of Liberal Arts & Sciences, coordinated the ceremony. In attendance were members of Brian's family, including his parents, Mark and Diane Anderson, and grandparents, John and Dolores Contrata, and other members of the Villanova University community.

PATENT PENDING

Dr. Hashem Ashrafiuon and his graduate student **Mehdi Nik-Khah, MSME '06** of the Mechanical Engineering Department applied for a United States patent on an "Exoskeletal Device for Rehabilitation" in January 2006. Their idea is to develop a lightweight, modular, and affordable exoskeletal device that would fit the lower extremities of a variety of patients requiring neuromuscular rehabilitation. While the proposed device could be used in different stages of rehabilitation such as sitting, standing, and walking, its unique feature will be in assisting the patient in the standing position. The design will be modular such that two rotary actuators located at any of the possible four hip and knee joints can be used during the earlier standing phase of rehabilitation with reduced weight and power requirement. The control and computing hardware will be stationary such that the patient does not have to carry any additional load. All four actuators, however, would be required during the walking stage of rehabilitation. A series of novel control algorithms will be developed to provide the appropriate hip and/or knee motions required for the specific phase and type of rehabilitation while simultaneously holding the upper body stable without any effort by the patient.

EQUIPMENT DONATION FROM LOCKHEED MARTIN

Lockheed Martin Space Systems Company donated a Scanning Electron Microscope (SEM) to the College of Engineering in March. The SEM is housed in the new Nanomaterial Characterization Laboratory in the Center for Engineering Education and Research (CEER). The laboratory is part of a College initiative to develop research and education in the area of nanotechnology. The gift was made possible by the efforts of Dr. H. Keith Moo-Young, Associate Dean for Graduate Studies and Research and Acting Dean and Joan Chrestay, former Associate Dean for External Affairs. Dr. Sridhar Santhanam, Associate Professor of Mechanical Engineering said, "The Lockheed Martin SEM is a powerful characterization tool that will enable the visualization and study of nanostructures. It is capable of perceiving details on the order of 100 nanometers and above." The equipment will be used in undergraduate and graduate classes and for student and faculty research.

CENTER FOR ADVANCED COMMUNICATIONS (CAC)

CAC HONORS "STUDENT OF THE YEAR" AT 2006 ANNUAL MEETING

On March 27, 2006, the CAC hosted its 2006 Annual Meeting in the Connelly Center at Villanova University campus. Presentations were given by VU Engineering faculty and postdoctoral fellows on the Center's current research projects in the areas of Radar Imaging, GPS, Communications, Antennas, and Sensors. Many of the presentations discussed wireless system technologies in commercial and defense applications.

During the lunch break **Dr. Moeness Amin** presented Mr. John McVay with the first annual "CAC Student of the Year Award." McVay was chosen for this honor based on his research work on CAC projects, having the best record on journal publications, conference/review preparations, and presentations, and in particular in recognition of his work on "Design of Novel Antennal and Metamaterials using Space-Filling Curves." Working with his advisor Dr. Ahmad Hoorfar and in collaboration with Dr. Nader Engetha at the University of Pennsylvania, McVay has published three journal articles and close to 30 conference papers. He has co-authored a Book Chapter entitled "Space-Filling-Curves High-Impedance Ground Planes" for the book "Metamaterials: Physics and Engineering Explorations," Wiley Publications, 2006. McVay received his Bachelor and Masters degrees in Electrical Engineering from Villanova University in 2001 and 2003, respectively. He is currently enrolled in the VU Engineering Doctorate program.



Dr. Ahmad Hoorfar, Mr. John McVay, and Dr. Moeness Amin

CAC AWARDS/GRANTS

CAC AWARDS/GRANTS

NATIONAL SCIENCE FOUNDATION (NSF) - PARTNERSHIP FOR BROADBAND WIRELESS INNOVATIONS, DEVELOPMENT, AND COMMERCIALIZATION ~ \$192,668

In February 2006 the CAC received the third and final increment of \$192,668, which completes the NSF three year grant totaling \$600,000. This partnership, of 21 members, including 11 companies, three federal labs, three universities, two community colleges, a high school, and the state of PA, has allowed the Center to be extensively involved in transitioning innovations to systems and technology. The CAC faculty actively involved in this project last year were **Drs. Moeness Amin (CAC),**

Sohail Chaudhry (C&F), Amy Fleischer (ME), Ahmad Hoorfar (ECE) and Randy Weinstein (ChE). The NSF grant covers the research areas of Signal Processing, Antennas and Thermal managements.

Dr. Robert Caverly, ECE, received a grant in the amount of \$6500 from Ben Franklin Technology Partners (BFTP) and Artisan Laboratories Corporation for research on *Impedance Matching Circuit for Fiber Optic Links.* This research will include performing a detail design and simulation analysis of octave bandwidth impedance matching circuits for a laser diode and a separate photodetector.

CAC DIRECTOR'S NEWS

Dr. Moeness Amin attended the 2006 Waveform Diversity & Design Conference in Kauai, HI in January 2006. While there he presented one paper coauthored by his colleagues at University of Pennsylvania. He also attended the SPIE Symposium on Defense and Security, Wireless Sensing and Processing Conference in Orlando, FL during April 2006. There he chaired one session and presented two papers. The other five papers he co-authored at the same conference were presented by the two CAC Associate Research Professors, Drs. Fauzia Ahmad and Yimin Zhang.

Dr. Amin also attended the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) held

in Toulouse, France in May 2006, where he presented one paper. The other two papers he co-authored at the same conference were presented by Dr. Yimin Zhang and Dr. Amin's colleague in Germany. Dr. Amin traveled to Waltham, MA to attend the IEEE Workshop on Sensor Array and Multi-channel Processing in July 2006 where he co-authored six papers out of which two were presented by him.

Dr. Amin served as an external examiner for two Ph.D. candidates. The first was for a student at Nanyang Technological University in Singapore. The second examination panel, which Dr. Amin attended, was held at Darmstadt University of Technology, Darmstadt, Germany on May 12, 2006.

Dr. Moeness Amin gave three invited talks, one at Drexel University on February 7,

another at the University of Delaware on May 8, and the third at the Darmstadt University of Technology in Germany on May 11. These talks focused on Through-the-Wall Radar Imaging.

Since January 2006, Dr. Moeness Amin has published two journal articles and twenty-one conference papers. These publications cover the areas of wireless communications, GPS, radar imaging, RFID and nonstationary signal processing. They are co-authored by his colleagues, CAC research professors, postdoctoral fellows, graduate, and undergraduate students. He has reviewed four journal papers and more than twenty conference submissions.

CAC ACTIVITIES

The CAC faculty at the Center for Advanced Communications have several on-going research projects funded by government and industry. The funding received for these projects over the past Academic year is \$2,241,876. The support for this funding comes from various sources - Office of Naval Research (ONR), Naval Surface Warfare Center (NSWC), Defense Advanced Research Projects Agency (DARPA), Ben Franklin Technology Partners (BFTP), National Science Foundation (NSF), Air Force Office of Sponsored Research (AFOSR), Pennsylvania Infrastructure Technology Alliance (PITA), Purrfect Fence Inc. and Artisan Laboratories Corporation.

The Center continues to host numerous meetings, aiming primarily at exploring new funding opportunities. Several all day internal & external reviews of current projects (DARPA, ONR, and NSWC) were held. Discussions of research findings with visitors and interested parties from academia, industry, and government (Naval Research Lab (NRL), BAE Systems, Wyle Laboratories, Teletronics Technology Corporation (TTC), Adaptive Digital, and Accu-Sort Systems, Inc.) were conducted.

Dr. Fauzia Ahmad, a CAC Associate Research Professor, represented the Center for Advanced Communications at the NATO SET-100 Task Group meeting on Through-the-Wall Imaging, held in Fort Monmouth, NJ, on January 25, 2006. There she gave a presentation entitled "Through-the-Wall Radar Imaging" which described the advances in research on through-the-wall imaging at Villanova.

Dr. Ahmad attended the SPIE Defense and Security Symposium, held in Orlando, FL, April 2006. There she presented two papers, one in the Sensors, and Command, Control, Communications and Intelligence (C3I) Technologies Conference and the other in the Wireless Sensing and Processing Conference, both coauthored by Dr. Moeness Amin and his students.

She also attended the IEEE Radar Conference held in Verona, NY, April 2006. There she presented a paper, coauthored by Dr. Moeness Amin.

CAC Associate Research Professor **Dr. Yimin Zhang** attended the SPIE Defense and Security Symposium held in Orlando, FL, April, 2006, and presented three papers. He also attended the International Conference on Acoustic, Speech, and Signal Processing held in Toulouse, France, May, 2006, and presented a paper. The papers are co-authored by **Drs. Moeness Amin, Genyuan Wang** and a graduate student.

Dr. Mohamed Sahnoudi, a post-doctoral research fellow in the CAC, attended the 6th International Conference on Independent Component Analysis and Blind Source Separation (ICA2006), held in Charleston, South Carolina, March 2006 where he presented one paper. In April 2006, Dr. Sahnoudi also presented a paper at the 2006 Position Location and Navigation Symposium (PLANS) sponsored every two years by the IEEE and the Institute of Navigation (ION).

CENTER FOR NONLINEAR DYNAMICS & CONTROL (CENDAC)

The researchers at CENDAC consisting of faculty and graduate and undergraduate students from the four engineering departments are pursuing numerous research projects funded by government and industrial agencies such as Office of Naval Research, National Science Foundation, SMI Steel Products, Ford Motor Company, Advanced Ceramics Manufacturing, and Ben Franklin Technology Partnership.

ACTIVITIES

CENDAC collaborates with numerous Federal laboratories and industries. **Dr. C. Nataraj**, the Director, continued collaborative arrangements with SPARTAN, which is the largest unmanned surface vehicle program in the Navy working towards developing unmanned ships for the Navy and Homeland Security. CENDAC is currently participating in real testing of advanced vehicles being conducted by SPARTAN. CENDAC is working closely with Naval Sea Systems Command in its efforts to set up a premier Unmanned Surface Vehicles research facility in Philadelphia.

We continued to work on various projects under a \$450K ONR grant pursuing the development of efficient unmanned vehicles that can function in dynamic and unstructured environments. Such a development will greatly enhance Navy operations by reducing the need for human personnel, and will result in substantial improvement of performance, safety, affordability and mission effectiveness.

CENDAC continued to develop a strong relationship with Ford Motor Company Powertrain division who is funding our research on automotive emission control, directed by **Dr. James Peyton Jones** and **Dr. Kenneth Muske**. CENDAC hosted engineers and managers from Ford Powertrain division who visited Villanova for two days of meetings.

In order to encourage collaborative efforts, and to enhance dissemination of our research in the broad context of education, CENDAC continues to strive to invite and accommodate participants at all levels. This summer CENDAC is hosting Dr. B. Samanta, a visiting professor from Sultan Qaboos University (Oman); he is collaborating with Dr. Nataraj on a research project in the area of prognostics of machinery. CENDAC also hosted students ranging from an undergraduate student at Cornell University to a high school senior in the Marple Newton school district.

CENDAC has continued working with Advanced Ceramics Manufacturing, a Native American owned

company located in Tucson, Arizona. In close collaboration with ACM, **Dr. Sridhar Santhanam**, **Dr. K.-P. Jen**, **Dr. Michael Rauli** and **Dr. C. Nataraj** are researching nanostructured ceramics to enhance manufacturing technologies (on a \$600K grant). Nanostructured ceramics offer the possibility of enhanced strength and toughness which make them excellent candidates for applications such as machining. In addition, a recent grant from NSF to fund a state of the art Scanning Electron Microscope as well as a donation of a second SEM from Lockheed Martin Company have substantially improved our ability to explore the fascinating world of nanotechnology and to perform cutting edge research. In addition, CENDAC will be purchasing a state of the art \$170K Atomic Force Microscope (AFM) this summer. ACM's sister company, Advanced Ceramics Research, is a leader in the development of unmanned air vehicles with whom we are co-authoring proposals to advance the state of the art in UAVs.

CENDAC is also working with Ablaze Corporation to develop proposals for nuclear, biological and chemical decontamination in coastal waters. CENDAC faculty continued to write proposals to various agencies and industries to explore research opportunities.

COMPUTATIONAL LABORATORY

CENDAC has access to two new computational clusters both running multiple Linux nodes. One is managed by Dr. Kenneth Muske, the second by Dr. Michael Rauli. These clusters are suitable for intense computations that can be parallelized. Examples are computational fluid dynamics, nanoscale computations, and molecular dynamics. These are state of the art facilities and help CENDAC and other CoE researchers perform cutting edge computational research.

On the educational front, the CoE offers a graduate certificate program in the area of Nonlinear Dynamics & Control which provides flexibility for working professionals as well as expertise for further studies such as doctoral programs. It includes a concentrated study of modern principles with both breadth and depth of coverage being emphasized. This certificate program complements the research program at CENDAC.

RESEARCH GRANTS

Other newly funded projects include the following grants.

- Peyton Jones, J.C., Muske, K.R., "Automotive Emissions, Control and Diagnostics Research", E.G. Barry Donation, \$20,555.
- Peyton Jones, J.C., Muske, K.R., Model-based Three-way Catalyst Control and Diagnostics for Super Ultra Low Emissions, Ford Foundation, \$120,000.
- Peyton Jones, J.C. and Muske, K.R., "Advanced Combustion Feedback for PZEV Emissions, HCCI, and Fuel Economy" submitted to the Ford Foundation University Research Program in the amount of \$120K over three years.
- CENDAC received \$15,000 grant from BFTP/Pagnotta Engineering for "Verification of hand and FEA analytical methods for welded aluminum box sections." (PI's: Gross & Hoffman).
- C. Nataraj, NIST Summer Undergraduate Research Fellowship Program, \$7,000.
- Peyton Jones, J.C. and Muske, K.R. (2005). "Development of a Novel Hydrogen Sensor for Automotive Applications" Bosch, Inc., \$15K.
- Muske, K.R. and Weinstein, R.D. (2005). "Experimental Verification of Minimum-time Optimal Recharging Control" Air Products and Chemicals, Inc., \$48,555.

STUDENT SUPPORT FOR RESEARCH AND OUTREACH

One of the central missions of our center is to provide a support environment for undergraduate and graduate students to actively pursue research. CENDAC strives to include undergraduate students in all its research projects.

- Turbo Research Foundation has set up a recurring student scholarship through CENDAC; the current scholarship is funding a graduate student, Mr. Vinay Venkatswamy to research and develop smart vibration systems.
- In a special arrangement with Naval Sea Systems Command (Philadelphia), CENDAC continues to support mentoring of undergraduate students working on internships over the summer months; these internships are externally funded by Office of Naval Research. This year, **Erin Vogel, MSME '06**, **George Tillinghast, ME '07**, and **Kevin Meredith, CPE '08**, are working at CENDAC laboratories funded by the internships.



VCE received a check from EPA Region 3 at the award ceremony. Present (l. to r.) were Dr. Rominder Suri, Hon. William Adolph, Dr. John Johannes, Dr. Barry C. Johnson and EPA Administration Don Welsh.

VILLANOVA CENTER FOR THE ENVIRONMENT

The Center designed and is now offering a multidisciplinary graduate **Certificate Program on Sustainable Engineering**. The focus of this Certificate is on Energy. There are courses offered in Electrical and Computer Engineering, Chemical Engineering, and Civil and Environmental Engineering Departments. Dr. Pritpal Singh taught the course ECE 7800 Renewable Energy Systems during the Spring 2006 semester - the first course in the Sustainable Energy Certificate program. Dr. Bullock taught the Electrochemical Power Sources course in Spring 2006 in the Chemical Engineering Department. A third course on Sustainability Principles for Industry and Society is being taught by Tad Radzinski in the Civil and Environmental Engineering Department this Summer. Additional information on the Certificate program can be obtained from the Center Director Dr. Rominder Suri.

The US Environmental Protection Agency region 3 Administrator Don Welsh presented a check of about \$101,000 to **Dr. Rominder Suri, VCE Director**, at an awards ceremony at VU in January 2006. This was regarding a pollution prevention project on emerging contaminants in municipal wastewater. Dr. Suri, along with Dr. Amanda Grannas and Dr. Anthony Lagalante are developing advanced wastewater technology to destroy emerging contaminants in municipal wastewater, and minimize these chemical wastes from university dorms. Numerous EPA members, VU faculty, staff and students attended the ceremony, including university administrators Dr. John Johannes, Vice President of Academic Affairs and Dr. Milton Cole, Assistant Vice President of Academic Affairs for Research and Sponsored Projects. The Honorable William Adolph of PA District 165 was also present and addressed the audience.

Press articles and a radio program evolved from Dr. Suri's research dealing with emerging contaminants in the environment and their control. On February 27, 2006, the front page of the Philadelphia Inquirer featured an article on Dr. Suri's research on emerging contaminants and ultrasound process. In April Dr. Suri's research on this topic was broadcast nationally by the National Public Radio, Weekend America program. An article on his research was featured by the Bureau of National Affairs (BNA) in January. Dr. Suri was an invited speaker at the Society of Environmental Toxicology and Chemists (SETAC - HDC) Conference this Spring where he talked about emerging contaminants in the environment and their control.

In May 2006, VCE hosted another successful workshop at VU on "Opportunities for Priority Chemical Reduction in the Iron and Steel Sectors." It was sponsored by the U.S. Environmental Protection Agency (EPA) and Pennsylvania Department of Environmental Protection (DEP), and was under VCE-EPA Partnership on Industrial Waste Minimization and Sustainability. Many professionals from industry, government and academia attended the workshop. It was webcast live facilitating interaction with many professionals around the country. Earlier, VCE hosted similar workshops at VU in partnership with PA EPA, DEP and Sunoco: "Opportunities for Naphthalene Reduction in Coatings and Solvents", "Fundamentals of Compressed Air Systems" and "Lead Free Solder Products in Electrical and Electronic Industry."

VCE organized a seminar where **Dr. Atul K. Mittal** from the Indian Institute of Technology (IIT) New Delhi, India presented a case study at VU on "Biological Quality of Urban Run-off: A Case of New Delhi, India." Dr. Mittal discussed the current pollution problem posed by urban wastewater discharges. The talk also addressed the issues related with the disinfection of effluents from the sewage treatment plants in India. The seminar was open to the public and many students and faculty from VU attended. Currently, VCE and IIT are discussing joint projects involving students and faculty.

VCE continues to maintain a close working relationship with Wyeth Pharmaceutical. Extensive research for Wyeth is being performed under Dr. Rominder Suri's guidance to develop efficient methods for wastewater treatment. Last year Dr. Rominder Suri and Dr. Lee Christensen conducted a week long workshop on "Wastewater Treatment: Process Theory and Applications" at Wyeth Ireland facility to provide advanced mentoring to their employees on wastewater treatment. **Dr. Suri** received \$74,000 from Parsons/Wyeth on preservative mass balance analysis research for Wyeth Canada facility. A major equipment donation was recently made to the Center by Wyeth Pharmaceuticals, valued at about \$175,000. This included a variety of lab equipment such as gas chromatographs, liquid chromatographs, FTIR, precision analytical balances, hydrogen generator, spectrophotometer, various glassware, etc. The equipment is being used by several faculty: Drs. Traver (CEE), Santhanam (ME), Jen (ME), Suri (VCE), Lagalante (CHM), Grannas (CHM)), and their graduate and undergraduate students. Dr. Pritpal Singh (ECE) also received a donation of an environmental chamber from InterDigital Inc., King of Prussia, PA.

Dr. Rosalind Wynne of Electrical and Computer Engineering Department and a Center affiliate, received a grant from the Office of Naval Research for \$100,000. Dr. Wynn, along with graduate students, will be developing “Evanescence Wave Sensors for Detecting Residual Gases Surrounding a Photocathode.”

Dr. Pritpal Singh, Chair of Electrical and Computer Engineering Department, received a grant of \$15,000 from Solar Scholar Program of the Sustainable Energy Fund of Southeastern Central Pennsylvania. Villanova was one of the six universities to receive this grant. Dr. Singh and his student were interviewed by local television Channel 57 UPN on this project. The project will involve the design and integration of a 3 kW solar electric system on the CEER building with displays of the amount of power being generated located in the lobby of CEER as well as in the Connelly Center. This project will be incorporated in the undergraduate and graduate curriculum.

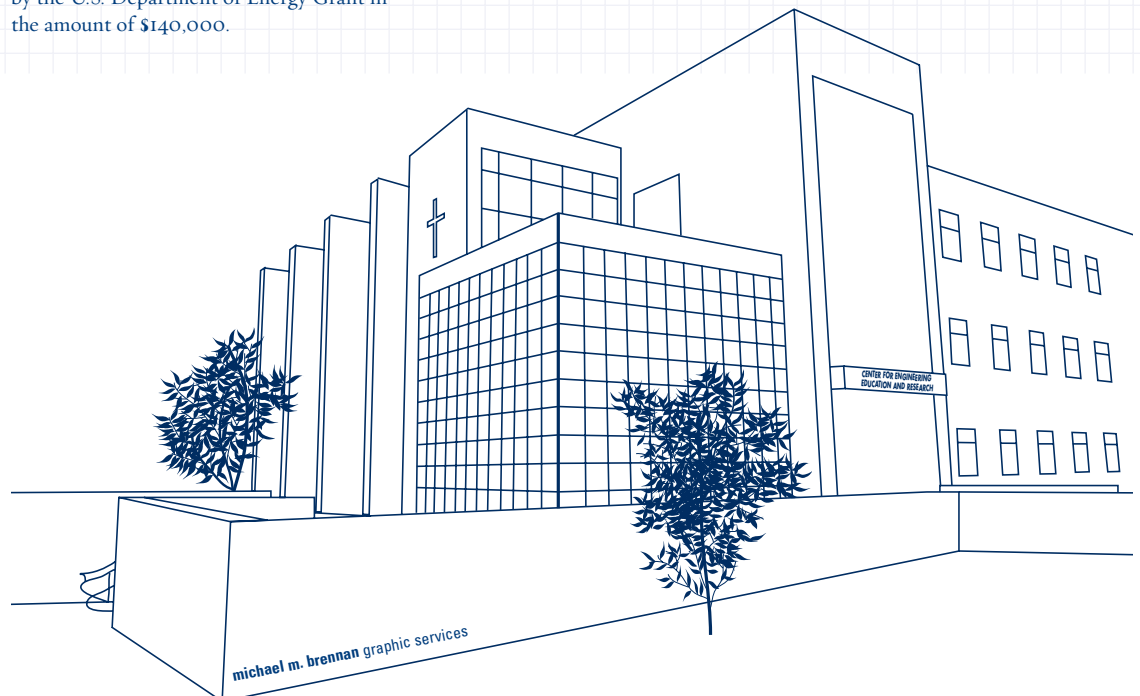
Dr. Keith Moo-Young, Acting Dean of the College of Engineering, and Dr. Charles Ochola (a Research faculty) are working on a project titled “Multi Region Reactive Transport Due To Strong Anisotropy in Unsaturated Soils with Evolving Scales of Heterogeneity.” This project is being funded by the U.S. Department of Energy Grant in the amount of \$140,000.

In the Center, research on several other projects is being conducted by multidisciplinary faculty and graduate and undergraduate students. **Dr. Chiu Liu (CEE)** and Dr. Rominder Suri are working on developing a new strategy for recycling mushroom compost waste which is of concern in the Greater Philadelphia Region. Treating the waste using lime and other chemicals, for unpleasant odor elimination, seems to be a promising and cost efficient treatment method. The treated mushroom compost waste could substitute significant portions of sand used in concrete production. It could be used in sidewalk construction, ground support for signboards or posts, sound walls, and retaining walls. This research was presented at the Joint International Conference on Computing and Decision Making in Civil and Building Engineering, in Montreal, Canada, June 2006. A paper entitled “Optimized Lime Content to Treat Recycled Mushroom Substrates in Concrete,” coauthored by students **Matthew Marchisello** and **Xueyu Pang**, and Drs. Rominder Suri and Chiu Liu was also published.

There were numerous other research publications and conference presentations by the Center faculty.

A patent titled “Reuse of Waste Materials via Manure Additive” was prepared and filed. This work was coauthored by **Dr. Rominder Suri** and two of his graduate students **Deepthi Kalyanam** and **Uthappa Mandepanda**.

For more information on Center activities, please contact the Center Director **Dr. Rominder Suri** at rominder.suri@villanova.edu or 610-519-8118.



Civil and Environmental Engineering Department

Dr. Metin Duran received a research grant from Pennsylvania Department of Environmental Protection. The two-year project "Tracking Non-Point and Point Sources of Fecal Pollution in Surface Waters by FAME Technology" in the amount of \$96,340, will enable Dr. Duran and his students to launch a state-wide microbial source tracking study to aid the Commonwealth in combating microbial pollution.

"State of the Art in Cellular and Castellated Beam Design" by **Drs. Rebecca Hoffman, David Dinehart, Shawn Gross, Joseph Yost** and their colleague Dr. Serge Parent was presented by Parent at the Canadian Society of Civil Engineering 1st International Structural Specialty Conference, ISSC-1, Calgary, May.

Dr. David Dinehart with graduate students **Geoffrey Morrissey** and **Andrew Blasetti** attended the 9th World Conference on Timber Engineering in Portland, OR. Dinehart presented the paper "Experimental Evaluation of Wood Shear Walls: Comparison of Viscoelastic Polymers and Traditional Fasteners" coauthored with H.W. Shenton, III and D.W. Foley. Morrissey presented the paper "Experimental Evaluation of Wood Joists with Large Web Openings," a paper coauthored with Dr. Dinehart. Blasetti presented the paper "Finite Element Modeling of Wood Shear Walls with Viscoelastic Polymers," a paper coauthored with Dr. Dinehart and Dr. Hoffman.

Drs. David Dinehart, Shawn Gross and Joseph Yost were awarded \$52,295 from the Steel Joist Institute for the eight-month project: "Crimped Angle Web and Joint Testing Project."

Dr. Andrea Welker received the Glen L. Martin Best Paper Award for the paper "Information Literacy: Skills for Life" which she co-authored with colleagues B. Quintiliano and L. Green. The award, consisting of a plaque and certificate was presented at the 2006 ASEE Annual Conference in Chicago in June. The Glen L. Martin Award is one of only two CE Division awards presented each year at the conference and exhibition. Thirty-nine papers were considered for the Martin Award which is presented to the author(s) of the best paper of the previous year's annual conference.

Electrical and Computer Engineering Department

Dr. Pritpal Singh and his student **Amal Kabalan, MSEE '07**, appeared on "Speak Up", a segment of the CBS 3 evening news, on May 20. The topic of the presentation was Singh's research for the Solar Scholars program, a solar-energy initiative funded by the Sustainable Energy Fund of Central-Eastern PA (SEF). Villanova is one of only six colleges in Pennsylvania to participate in this program which is the first one of its kind in the nation. The students are offered hands-on study, training and research in applying solar technology as part of an overall academic curriculum on renewable and sustainable energy.

Dr. Ahmad Hoofar co-organized and co-chaired two sessions on "Antenna Systems" and "Novel Antennas" at the 2006 IEEE Radio and Wireless Symposium held in San Diego, CA, January 14-20, 2006. He also organized a special invited session on "Antenna Systems: Novel Modeling and Optimization Techniques" at the 2006 IEEE Aerospace Conference held in March 2006 in Big Sky, MT.

Work continues on a National Science Foundation grant entitled "Curriculum Development in Systems for Smart Communications". This \$497,000 four year grant is under the direction of **Dr. Robert Caverly** and has as Co-Principal Investigators **Drs. Moeness Amin** and **Ahmad Hoofar**. The project goal is to put together educational concept modules in both written and video form covering important current topics in communications systems.

Mechanical Engineering Department

Dr. Hashem Ashrafiuon presented the paper "Robust Control of a Class of Mechanical Systems Actuated by Shape Memory Alloys" at the American Control Conference (ACC 2006) in June 2006 in Minneapolis, MN.

Dr. Amy Fleischer presented a talk entitled "Techniques in Advanced Thermal Management of Electronics," at the Center for Advanced Communications Research Symposium, March 27, 2006.

Dr. Fleischer was an invited guest of Kulicke & Soffa, one of the world's leading suppliers of semiconductor assembly equipment, tools and materials. While visiting their facility in April of 2006 she presented an invited lecture entitled "Advanced Thermal Management of High Power Density Electronics," and discussed the implications of high heat loads in their design of advanced wire bonding equipment.

Dr. Fleischer was a guest lecturer in the Georgia Institute of Technology's graduate level course on Thermal Management of Electronics in April of 2006. She listened to and reviewed students' case study presentations on the use of phase change materials for transient thermal management.

Dr. Fleischer received a grant in the amount of \$15,000 from the National Science Foundation for "A Workshop on Thermal Challenges in Next Generation Electronic Systems: THERMES 2007."

Dr. G. F. Jones coauthored with graduate students P. Chanda and S. Ghassemi a paper entitled "Thermal Optimization of a Composite Heat Spreader: Large High-Conductivity Blade Fraction." It was presented by Jones at the 2006 International Heat Transfer Conference in Sydney, Australia.

Dr. Sergey G. Nersesov coauthored with Wassim M. Haddad of Georgia Institute of Technology and VijaySekhar Chellaboina of the University of Tennessee a book entitled "Impulsive and Hybrid Dynamical Systems -- Stability, Dissipativity, and Control." The book develops a general analysis and control synthesis framework for impulsive and hybrid dynamical systems. It is intended for graduate students, researchers and practitioners of engineering and applied mathematics as well as computer scientists, physicists and other scientists who seek a fundamental understanding of the rich dynamical behavior of impulsive and hybrid dynamical systems.

FACULTY PAPERS

- Ahmad, F., Setlur, P. and Amin, M. (2006) "Through-the-Wall Target Localization Using Dual-Frequency CW Radars." *Proceedings of the SPIE Symposium on Defense and Security, Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies Conference*, Orlando, FL.
- Ahmad, F. and Amin, M. (2006) "Analyses of Autofocusing Schemes for Indoor Imaging with Unknown Walls," *Proceedings of the IEEE Workshop on Sensor Array and Multi-channel Processing*, Waltham, MA.
- Ahmad, F. and Amin, M. (2006) "A Noncoherent Approach to Radar Localization through Unknown Walls" *Proceedings of the 2006 IEEE RADAR Conference*, Verona, NY.
- Amin, M., Setlur, P., Zeman, P. and Ahmad, F. (2006) "Moving Target Localization for Indoor Imaging Using Dual Frequency CW Radars," *Proceedings of the IEEE Workshop on Sensor Array and Multi-channel Processing*, Waltham, MA.
- Ashrafioun, H., Eshraghi, M. and Elahinia, M..H., (2006) "Position Control of a Three-Link Shape Memory Alloy Actuated Arm," *Journal of Intelligent Material Systems and Structures*, Vol. 17, no. 5, pp. 381-392.
- Aviyente, S., Ahmad, F. and Amin, M. (2006) "Information Theoretic Measures for Through-the-Wall Surveillance," *Proceedings of the IEEE Workshop on Sensor Array and Multi-channel Processing*, Waltham, MA.
- Blasetti, A.S., Hoffman, R.M., and Dinehart, D.W. (2006) "Finite Element Modeling of Wood Shear Walls with Viscoelastic Polymers," *Proceedings of the 9th World Conference on Timber Engineering*, Portland, OR.
- Cirillo, L., Zoubir, A. and Amin, M. (2006) "Estimation of FM Parameters using a Time-Frequency Hough Transform," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Toulouse, France.
- Dinehart, D.W., Shenton III, H.W. and Foley, D.W. (2006) "Experimental Evaluation of Wood Shear Walls: Comparison of Viscoelastic Polymers and Traditional Fasteners," *Proceedings of the 9th World Conference on Timber Engineering*, Portland, OR.
- Duran, M., Haznedaroglu, B.Z. and Zitomer, D.H. (2006) "Microbial Source Tracking Using Host Specific FAME Profiles of Fecal Coliforms" *Water Research*, Vol. 40, No. 1.
- Estephan, H., Ahmad, F., Amin, M. (2006) "An Interactive Software for Real-Time Simulation of Through-the-Wall Imaging Radar," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Toulouse, France.
- Fleischer, A.S., Troppenz, U., Hamacher, M. and John, W., (2006) "Thermal Analysis of Bond Layer Influence on Performance of an All-Active Vertically-Coupled, Microring Resonating Laser," *Microelectronics Reliability*, Vol. 46, pp. 421-431.
- Fleischer, A.S., Johnson, B. and Chang, L., (2006) "The Effect of Die Attach Voiding on the Thermal Resistance of Chip Level Packages" *Microelectronics Reliability*, Vol. 46, pp. 794-804.
- Jones, G.F., Bielenberg, P., Prenger, F.C. and Veirs, D.K. (2006) "Effects of Pressure on Thermal Transport in Plutonium Oxide Powder," *International Journal of Heat and Mass Transfer*.
- Liu, L. and Amin, M. (2006) "GPS Noncoherent Early-Minus-Late Power Discriminator Tracking Performance in Multipath Environment" *Proceedings of the SPIE Symposium on Defense and Security, Wireless Sensing and Processing Conference*, Orlando, FL.
- Liu, C., Marchisello, M., Pang X. and Suri, R. (2006) "Optimize the Lime Content to Treat Recycled Mushroom Substrates in Concrete," *Joint International Conference on Computing and Decision Making in Civil & Building Engineering*, Montréal.
- Liu, C., Wang, Z., Lee, J.N. and Pang, X. (2006) "Computing the Pitch & Roll Effects on Dynamic Forces Exerted on Pavements by Heavy Vehicles," *Joint International Conference on Computing and Decision Making in Civil & Building Engineering*, Montréal.
- Liu, C. and Wang, Z. (2006), "Physical Characterization of Pavement Profile and Ride Quality, Past, Present, and Future," *Shanghai Highways, an International Journal*, No. 99, Vol. 1, pp 7-9.

FACULTY PAPERS CONT.

McVay, J., Engheta, N. and Hoorfar, A. "Space-Filling-Curve High-Impedance Ground Planes" Chapter 14 in *Metamaterials: Physics and Engineering Explorations*, Wiley Publications.

McVay, J., Hoorfar, A. and Engheta, N. (2006) "Theory and experiments on Peano and Hilbert Curve RFID Tags," *Proceedings of the 2006 International Society for Optical Engineering (SPIE) Symposium on Defense and Security*, Orlando, FL, April.

McVay, J., Hoorfar, A. and Engheta, N. (2006) "Space-Filling Curve RFID Tags," *Proceedings of the IEEE Radio and Wireless Symposium*, San Diego, January.

Morrissey, G. and Dinehart, D.W. (2006) "Experimental Evaluation of Wood Joists with Large Web Openings," *Proceedings of the 9th World Conference on Timber Engineering*, Portland, OR.

Sahmoudi, M. and Amin, M. (2006) "Unitary Cyclic MUSIC for Direction Finding in GPS Receivers," *Proceedings of the IEEE Workshop on Sensor Array and Multi-channel Processing*, Waltham, MA.

Sahmoudi, M., Boumaraf, H., Amin, M. and Pham, D-T. (2006) "Blind Separation of Convolutional Mixtures Using Nonstationarity and Fractional Lower Order Statistics: Application to Audio Signals," *Proceedings of the IEEE Workshop on Sensor Array and Multi-channel Processing*, Waltham, MA.

Shoeb, M., Ahmad, F. and Amin, M. (2006) "Indoor Wireless Source Localization Based on Area Constraints," *Proceedings of the SPIE Symposium on Defense and Security, Wireless Sensing and Processing Conference*, Orlando, FL.

Stedtfeld, R.D., Alm, E.W., Duran, M., Hashsham, S.A., and Yurtsever, D. (2006) "Detection and Occurrence of Indicator Organisms and Pathogens," *Water Environment Research*, Vol. 76, No. 6.

Tepe, N., Shimko, L.A. and Duran, M. (2006) "Toxic Effects of Thiol-Reactive Compounds on Anaerobic Biotransformation" *Bioresource Technology*, Vol. 97, No. 4.

Wang, G., Amin, M.G. and Zhang, Y. (2006) "A New Approach for Target Locations in the Presence of Wall Ambiguity," *IEEE Transactions on Aerospace and Electronic Systems*, vol. 42, no. 1, pp. 301-315.

Whitman, A. M. and Ashrafiuon, H., "Asymptotic Theory of an Infectious Disease Model," accepted for publication in *Journal of Mathematical Biology*.

Zhang, Y., Obeidat, B. and Amin, M.G. (2006) "Spatial Polarimetric Time-Frequency Distributions for Direction-of-Arrival Estimations," *IEEE Transactions on Signal Processing*, vol. 54, no. 4, pp. 1327-1340.

Zhang, Y., Wang, G. and Amin, M. (2006) "Distributed Turbo- BLAST for Cooperative Wireless Networks," *Proceedings of the IEEE Workshop on Sensor Array and Multi-channel Processing*, Waltham, MA.

Zhang, Y., Wang, G. and Amin, M. (2006) "Cooperative Spatial Multiplexing in Multi-Hop Wireless Networks," *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, Toulouse, France.

Zhang, Y., Wang, G. and Amin, M. (2006) "Distributed MIMO-OFDM in Imperfectly Synchronized Cooperative Network," *Proceedings of the SPIE Symposium on Defense and Security, Wireless Sensing and Processing Conference*, Orlando, FL.

Zhang, Y. and Amin, M. (2006) "Localization and Tracking of Passive RFID Tags," *Proceedings of the SPIE Symposium on Defense and Security, Wireless Sensing and Processing Conference*, Orlando, FL.



Photo by Aurora Imaging

2006 Medallion Recipients (l. to r.) Kelly Doyle, Francis Lagor and Nicholas O'Donoghue with Dr. H. Keith Moo-Young Associate Dean for Graduate Studies and Research and Acting Dean.

NOTEWORTHY

The 98th graduating class of the College of Engineering received their degrees on May 21, 2006.

At the Hooding Ceremony on May 20, one graduate from each program was presented with the College of Engineering Medallion. This award is based on academic performance and demonstrated leadership. The recipients for the class of 2006 are **Elizabeth M. D'Addio, BSCE**, **Francis D. Lagor, BSME**, **Nicholas A. O'Donoghue, BSCPE**, **Habib G. Estephan, BSEE**, and **Kelly C. Doyle, BSCE**.

The Graduate Student Research Excellence Award was presented to students who have completed their graduate degree and have performed exemplary work in the area of research. Awardees and their thesis topics are:

Andrew S. Blasetti, MSCE, "A Viscoelastic Sheathing-to-Stud Connection for Wood-Frame Gypsum Shear Walls."

Mayur Jain, MSCHE, "Modeling Two Phase Flow in Bioprocesses: Bioreactor and Continuous Flow Centrifuge Studies."

Shveta Kantamsetti, MSEE, "Digitally Controlled (FPGA/ASIC) Hybrid Power Supply For Smart Munition."

Ahsan Samiee, MSME, "Reliability Based Design Optimization of Magneto-Structural Coupled Problems."

Megan C. Vanacore, MSCE, "A Model of Infiltration from a Rock Storage Bed Best Management Practice (BMP)."

MINI-BAJA DRIVEN

Villanova's Wildcat Racing team competed in the Society of Automotive Engineers (SAE) Mini Baja® East competition held in Alabama at Auburn University on April 12-15, 2006. The team, led by senior Nick Orticelle and sophomore Kortney Brown, placed 19th of 66 teams from the US and Canada. This was a nine place jump from their 28th place overall finish in 2005. In individual dynamic events, they placed 2nd in Water Maneuverability, 10th in the Log Pull and 19th in Suspension and Traction. This is Villanova's fourth entry in the competition.

Mini Baja® consists of three regional competitions that simulate real-world engineering design projects and their related challenges. Engineering students are tasked to design and build an off-road vehicle that will traverse and survive the severe punishment of rough terrain including water.

Prior to the competition, the Mini Baja team submitted a full design report and cost analysis. The three-day

competition began with a thorough safety inspection. The second day consisted of a series of dynamic competitions including Acceleration and Top Speed, Water Maneuverability, Land Maneuverability, Log Pull and Suspension and Traction. The third and final day culminated in a four hour Endurance Race in which the team placed 24th.

The object of the competition is to provide SAE student members with a challenging project that involves the planning and manufacturing tasks found when introducing a new product to the consumer industrial market. Teams compete against one another to have their design accepted for manufacture by a fictitious firm.

Students must function as a team to not only design, build, test, promote, and race a vehicle within the limits of the rules, but also to generate financial support for their project and manage their educational priorities.



Suspension and Traction Event



Villanova's 2006 Mini Baja Team: Stephen Bolinski, Alex Bamberger, Ian Azeredo, Michael Breckenridge, Kortney Brown and Nick Orticelle.



Endurance Race. Villanova placed 24th of 66 teams.



Land Maneuverability Event



Water Maneuverability Event. Villanova placed 2nd.



Photo by John Welsh

Conti Award Winners (l. to r.) Michael Newman, Kaylan Sites, Kevin Martin, Kalyan Rapolu with Kurt Conti.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

The 2006 ASME Regional Student Conference (RSC) was held at Penn. State University in State College, PA on the 17th and 18th of March. This conference is an annual event and is attended by mechanical engineering students and faculty advisors from about 40 different schools in ASME's region III, which is primarily from the Northeast. Seven mechanical engineering seniors, juniors, and sophomores from Villanova University were among the 40 students who attended the conference this year. Students attending were Frank Lagor, Regina Ondrejco, Tim Montalbano, Erin Vogel, Tess Zangrilli, Chris Chamberland, and Hyung Jung. They were accompanied by the student section advisor, Dr. S. Santhanam.

The events at the Regional Student Conference included competitions and other presentations. The competitions included the Student Design Contest, the Old Guard Oral Presentation Contest, the Old Guard Poster Competition, and the Technical Web Page Contest.

In the Old Guard Oral Competition, Chris Chamberland, a senior, finished in Second Place. Hyung Jung took first place in the Poster Competition.

SCHOLARSHIP NEWS

BOEING COMPANY SCHOLARSHIP

Each year the Boeing Company awards two scholarships to Villanova students: one to a student in the Villanova School of Business and one to a student in the College of Engineering. **Brian Kneis, ME '07** is the current recipient in the College of Engineering. He earned a \$3,000 scholarship award in recognition of his interests in areas that coincide with that of the Boeing Co.

CLARE BOOTHE LUCE SCHOLARSHIP

Erin Johnson, CEE '08 and **Ashley Fortino, CEE '08** were awarded The Clare Boothe Luce Scholarship in Engineering for the second year. The award results in full-tuition scholarships. Johnson and Fortino were selected as the Clare Boothe Luce Scholars in the academic year 2004-2005. Eligibility was based on merit and academic credentials and is renewable annually. The Clare Boothe Luce Program promotes the advancement of American women through higher education in the sciences, engineering and mathematics.

AIR PRODUCTS AND CHEMICALS, INC. SCHOLARSHIP

Sharika D. Anderson, CHE '07 has been awarded the Air Products and Chemicals, Inc. Scholarship for Diversity in Engineering. The scholarship includes an award of \$7500 for the 2006-2007 academic, renewable for the 2007-2008 academic year. Anderson was chosen based on her academic and extracurricular achievements; she is one of two recipients chosen from a substantial pool of applicants.

CONTI ENTERPRISES SCHOLARSHIPS

The Conti Enterprises Scholars program offered its annual scholarship and internship opportunity to two students in the College of Engineering. This year's recipients are **Kevin Martin, CEE '07** and **Michael Newman, ME '07**. The program provides two \$7,000 scholarships and paid summer internships to qualifying Civil and Environmental and Mechanical Engineering students for the 2006-2007 academic year. Student recipients are selected through a competitive process including a GPA of 3.0, a letter of applicable credentials, and resume, culminating in an on-campus personal interview with a representative of Conti Enterprises.

This year Conti Enterprises also established a new collaboration with the College of Engineering around the renewable energy field. Recipients of the Conti Enterprises Renewable Energy Scholars program for 2006-2007 are **Kaylan Sites, EE '07** and **Kalyan Rapolu, MSEE '06**. The partnership also includes a graduate fellowship, training, and research with Dr. Pritpal Singh, Department Chair, Computer and Electrical Engineering.

Conti Enterprises is a heavy construction firm active in the New York, New Jersey and Connecticut areas. Headquartered in New Jersey, the company has provided construction services since 1906, in broad categories such as remediation, demolition, transportation infrastructure, marine, rail and power.

Kurt Conti '84, President and CEO, serves on the College of Engineering Advisory Council. A luncheon to honor the student recipients was held in March.

ENGINEERING NROTC NEWS

The 2005-2006 academic school year produced great results for NROTC students enrolled in the College of Engineering. The Villanova NROTC Unit just recently commissioned nine students from the College of Engineering:

Ensign Michael Alexander, ME, Submarine Warfare

Ensign Mark Burchill, ME, Submarine Warfare

Ensign Michael Erwin, EE, Submarine Warfare

Ensign Carl Hansen, ME, Aviation - Pilot

Ensign Michael Matt, CEE, Surface Warfare

Ensign Ryan McCabe, CPE, Surface Warfare

Ensign Ryan Reed, ME, Submarine Warfare

Ensign David Smith, CEE, Naval Special Forces

As a part of the NROTC students' professional development, each year the NROTC Unit sends students to various warfare platforms around the world. This summer 20 NROTC students from the College of Engineering are embarked on various Navy platforms around the world. Some of the highlighted training opportunities are as follows. **MIDN 1/C Brian Gaspar, ME '07** is on an amphibious assault ship in Southeast Asia. **MIDN 1/C Mark Lotto, CEE '07** and **MIDN 2/C Marguerite Dehaven, CEE '08** are both on a guided missile destroyer based out of Japan. **MIDN 2/C Patrick Calkins, ME '08** is participating on strategic nuclear deterrent patrol on a ballistic missile submarine based out of Bangor, WA.

STUDENT NEWS

Carl Hansen, BSME '06 was honored at a luncheon held in the Villanova Room of the Connelly Center as part of the NCAA National Student-Athlete Day. Each Villanova coach is asked to select one representative from his or her team to attend the luncheon. The designated athlete is a team member who serves as a role model to others, is involved in activities outside athletics and is a person who shows concern for others. Hansen was chosen as the 2006 Men's Track & Field Team Representative.

Francis (Frank) Lagor, BSME '06



has been awarded a Phi Kappa Phi Fellowship in the amount of \$5,000 to be used towards his graduate studies in the Fall of 2006 at the University of Pennsylvania.

His application was submitted by the Villanova Chapter to the national selection committee for consideration of the award; he is one of 60 students selected from a pool of national applicants from approximately 300 college campuses. Lagor received a check for \$750 from the Villanova Chapter as well. Lagor has also been recognized by Tau Beta Pi, The Engineering Honor Society, with a James Fife Fellowship. He is one of 35 winners chose from a field of 218 applicants. Tau Beta Pi Fellowships are awarded on the competitive criteria of high scholarship, campus leadership and service, and promise of future contributions to the engineering profession.

Elizabeth D'Addio, BSChE '06 a runner up for the Phi Kappa Phi Fellowship award, received a check for \$500 from the Villanova Chapter of Phi Kappa Phi.

The Stanley K. Ciesielski Award was presented to **Jamie Lefkowitz, BSCE '06** at the Civil and Environmental Engineering Day held on April 28, 2006. The award is presented annually to a graduating Civil Engineering student who has demonstrated scholastic excellence and has freely given of his or her time, energy and talents in service to the department. The award is named for Dr. Stanley Ciesielski whose professional life was dedicated to education, civil engineering and Villanova University from his matriculation as a freshman at Villanova in 1956 until his death in 1997.

Villanova Women's Track Team member **Tiera Fletcher, ME '07** along with teammates Akilah Vargas, Marina Muncan and Frances Koons, excelled at the 2006 Penn Relays with a first place win in the distance medley relay.

Nicholas O'Donoghue, BSCPE '06



presented his research project "An Intelligent Patient Monitoring System for Hospital ICUs" at Falvey Scholars, an annual event hosted by Falvey Memorial Library

to recognize special achievements in undergraduate research. O'Donoghue has received a full scholarship to attend Carnegie Mellon University to pursue a Ph.D. degree in Electrical Engineering.

Jennifer Ehrhardt, ChE '07 has been named a Tau Beta Pi Scholar. She received a scholarship of \$2,000 from Tau Beta Pi, The Engineering Honor Society for her 2006-2007 academic year of study.

Kelly C. Doyle, BSCE '06 winner of the CEE Medallion, was awarded an NSF Graduate Research Fellowship. She will be attending MIT in the fall to research the effects of aquatic vegetation on sediment removal in zones of high water flow. She will be working with Dr. Heidi Nepf in the Environmental Fluid Mechanics/Civil Environmental Engineering Department at MIT while pursuing her Masters of Science degree.

Carlos Molina-Hutt and Bryan Enslein, CEE '07 have been awarded Commercial Metals Corporation (CMC) undergraduate summer research fellowships in structural engineering.

Ahsan Samiee, MSME '06 received a full scholarship to attend University of California, San Diego to pursue a Ph.D. degree in Mechanical Engineering.

Mehdi Nik-Khah, MSME '06 presented the paper "Optimal Sliding Mode Control for Underactuated Systems" at the American Control Conference (ACC 2006) in June 2006 in Minneapolis, MN. The paper was co-authored with Dr. Hashem Ashrafiun, ME and Dr. Kenneth Muske, CHE. Nik-Khah received the Best Presentation Award at the conference. Nik-Khah will continue his education at Virginia Tech where he has received a full scholarship for Ph.D. studies in Mechanical Engineering.

NINTH YEAR FOR VU PARTICIPATION IN SAN DIEGO FAIR

Villanova University participated for the ninth year in conferring an award at the **52th Annual Greater San Diego Science and Engineering Fair** held in Balboa Park on March 29-April 2, 2006.

Anthony Neuberger, a junior at Torrey Pines High School, received Villanova's Certificate of Recognition for his outstanding project "*Design, Development and Testing of an Autonomous Navigation System*". His development of a low cost GPS based human-free navigational guidance system to pilot lighter-than-air aircraft demonstrated a commendable level of technical competence and scientific excellence. Other judges also thought Neuberger's work was noteworthy. Neuberger received first place in the Science Fair's Senior Division - Engineering. He also received four other professional society recognition awards in addition to Villanova University's award (General Atomics Fusion Program, Association of Old Crows, IEEE, and Marine Technology Society).

In addition to a certificate, Neuberger was presented with a Villanova executive padfolio provided by the Admissions Office, a Villanova sweatshirt provided by the Alumni Office, and a Villanova Engineering polo shirt from the College of Engineering. This year's fair had over 802 entries from students in 87 schools located in both San Diego and Imperial Counties. The many excellent exhibits provided a challenge and an inspiration for our dedicated judges **Rob Capone CHE '95**, **Bob Doublebower CE '68**, **Ed Ernst ME '57**, **John Finn Chem '77**, **Chip Garry ME '83**, **Al Rench CE '69**, and **Dick Schleicher ME '57**.



Dick Schleicher, ME '57 presented the Villanova University Award to Anthony Neuberger.



Robert J. Bettacchi, BCHE '64 (l) was presented with the J. Stanley Morehouse Memorial Award in recognition of his outstanding leadership. The award was presented by Dr. H. Keith Moo-Young, (r) Associate Dean for Graduate Studies and Research and Acting Dean.

JUNE 2006 ENGINEERING ALUMNI AWARD RECIPIENTS

Every year Villanova University, the College of Engineering, the Villanova Engineering Alumni Society (EAS), and the Villanova Alumni Association gather to recognize outstanding Villanova Engineering alumni. The awards for 2006 were presented at the Thirtieth Annual Engineering Alumni Society Awards program held on June 9, 2006.

The J. Stanley Morehouse Memorial Award recognizes outstanding leadership, as demonstrated in the planning or the administration of activities involving or related to the engineering profession.
Robert J. Bettacchi, BCHE '64

The John J. Gallen Memorial Award recognizes the achievement of those whose technical effort yields advances in the engineering profession.
Brian T. Smith, BEE '93

The Carl T. Humphrey Memorial Award recognizes the professional achievements of an alumnus who holds a Masters Degree from Villanova's College of Engineering.
Hanuman Mallubhotla, MCHE '92

The Robert D. Lynch Award recognizes the scholastic achievements of an outstanding new graduate of the College of Engineering.
Nicholas A. O'Donoghue, BSCE '06

The Alumni Award for Professional Achievement recognizes the outstanding achievement of a Villanova College of Engineering graduate in a technological environment.
Vita A. Genua, BCE '72
James B. Mynaugh, BCHE '80
Robert F. Slattery, BEE '92, MSEE '94
Edward J. Phillips, BME '73

The Alumni Award for Meritorious Service recognizes alumni who have given continuing support to the College of Engineering.
Pasquale A. Dougherty, BCE '68
Robert F. Gordon, BCHE '80
Gerard J. Mayer, BEE '73
Gary J. Nevard, BME '91

ALUMNI NEWS

70 Ralph Nevel, EE has been named technical manager, electrical engineering services, at Spotts, Stevens and McCoy, Inc., an engineering and consulting firm in Reading, PA.

70 Robert Pizzano, CE is deputy director of facilities at the Massachusetts Institute of Technology, with responsibility for planning, design, construction, operations and utilities.

84 John Abruzzo, CE has been promoted to principal at Thornton-Tomasetti Engineers in New York City.

85 Michael J. Garland, CE is deputy director of environmental services for Monroe County, NY. He works with the director, John Graham, '72 CE.

99 John G. Reidy, CE has been promoted to vice president at the environmental consulting firm of Metcalf & Eddy, where he manages the firm's efforts in Atlanta.

01 Brian T. Harte, EE has been promoted to senior systems engineer at Lockheed Martin's Maritime Systems Y Sensors in Moorestown, NJ.



NEWSLETTER STAFF

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