



UMass

| Dartmouth

COLLEGE OF ENGINEERING

Fall 2013

John Berg '85 shows Chancellor Grossman photos of the LED Beacon of Freedom atop the One World Trade Center in New York.



Seizing the moment and lighting it up

John Berg '85

The New York City skyline will soon look a little brighter, thanks to an amazing boost of technology and high tech lighting engineered by UMass Dartmouth alumnus, John Berg '85. Reaching heights of 1,776 feet, One World Trade Center has surpassed the Empire State Building to become the tallest building in New York City. Formally called the Freedom Tower, it is located in lower Manhattan as a reminder of the resilience of

New York City after the devastation of the terrorist attacks of September 11th. The Beacon of Freedom is at the top of the tower and will illuminate the night sky for miles. All 264, 8-foot, high powered LED beacon lights are the brainchild of Berg who is President and founder of Carpe Diem Technologies, Inc. in Franklin, Massachusetts. The official lighting of the Beacon of Freedom is tentatively scheduled for September 11, 2013.

Carpe Diem, or 'seize the day', is not just a saying in the life of Berg and his company, he lives it every day. Often in the world of larger engineering facilities, inventing and testing prototypes takes weeks of work. Engineering is a fast changing industry but the process can often move slowly. Berg has always loved a good problem to solve and what takes the larger companies weeks to accomplish, Carpe Diem can do in days. Berg and the Carpe Diem family have the

continued on page 2

Message from the Dean



Dear Alumni and Friends,

Welcome to this issue of the *College of Engineering newsletter*. The College is once again noted among the "best in undergraduate engineering" by *U.S. News & World Report* and moved up two spots to #35 in the national rankings for primarily master's granting institutions.

In this newsletter, you can read about accomplished students Lauren Underwood '13, who received a 29 Who Shine Award from Governor Patrick at the State House and Monica Diaz '13 who lead a capstone design team that created a novel solution adopted by NASA. Our students also planned a One Fund torch run from Dartmouth to Boston honoring the individuals who lost their lives and the families affected by the Marathon bombing tragedy. The torch was designed and built by a mechanical engineering alumnus and student, respectively.

This year we are adding new learning and discovery opportunities for faculty and students. In January we launched the Center for Scientific Computing and Visualization Research that brings together faculty to foster highly interdisciplinary approaches to solving complex scientific problems. This fall we opened a unique space called the Hall-Hildreth Innovation, Design, Engineering and Art Studio (IDEAStudio) made possible by generous alumni Norm (Chip) Hildreth '85 (Electrical) and Sue Hall '85 (CVPA).

Entrepreneurship is a prominent theme in this fall's newsletter and we highlight the work of several outstanding alumni, John Berg '85 (Mechanical) of Carpe Diem Technologies and David Sluter '75 (Civil) of New England Construction. Our newsletter also introduces some fine new engineering faculty hires. We are equally pleased to welcome new provost, internationally accomplished electrical and computer engineer, and executive vice chancellor for academic and student affairs, Dr. Mohammad Karim.

This is a truly exciting era in the engineering marketplace. Emerging technologies have caused the demand for talented engineers of virtually all disciplines to quickly outpace the supply. We are pleased to welcome over 300 new freshmen to the College this fall. In the spring the College embarked on a strategic planning process with members of our Advisory Board that continues with the University's overall UMassD Transform 2020 initiative.

We invite you to visit our website at www.umassd.edu/engineering/ to learn more. Your suggestions for supporting and advancing the College are always welcome.

Sincerely,

Robert E. Peck, Ph.D.
Dean, College of Engineering

Seizing the moment *continued from pg 1*

ability to imagine and create. "We take a good idea and make the process happen," said Berg. Unlike larger companies, Carpe Diem makes a core mechanism to test and then will use it for more than one project. "We are able to engineer different prototypes for different projects and then focus on what will really work."

Carpe Diem provides more than high precision systems knowledge, nano technology and optics. They are also involved in projects and inventions using roll to roll equipment, advanced technology in LED lighting, technology for different niche markets such as the cell phone industry, television and movie industries and security packaging used in the video game industry. Carpe Diem also processes electronic paper and other printable electronics.

Berg said his UMass Dartmouth education was "far more than just in the classroom." As a student, he served on the student senate, was a dorm RA and even performed with the Theatre Company. The experiences "gave me the chance to have different friends and helped me grow as a person," says Berg. UMass Dartmouth and the College of Engineering provided Berg the foundation and drive to succeed professionally giving him the ability to create a model and framework both from a mathematical and engineering

***Don't be afraid
to get in and,
get in deep.***

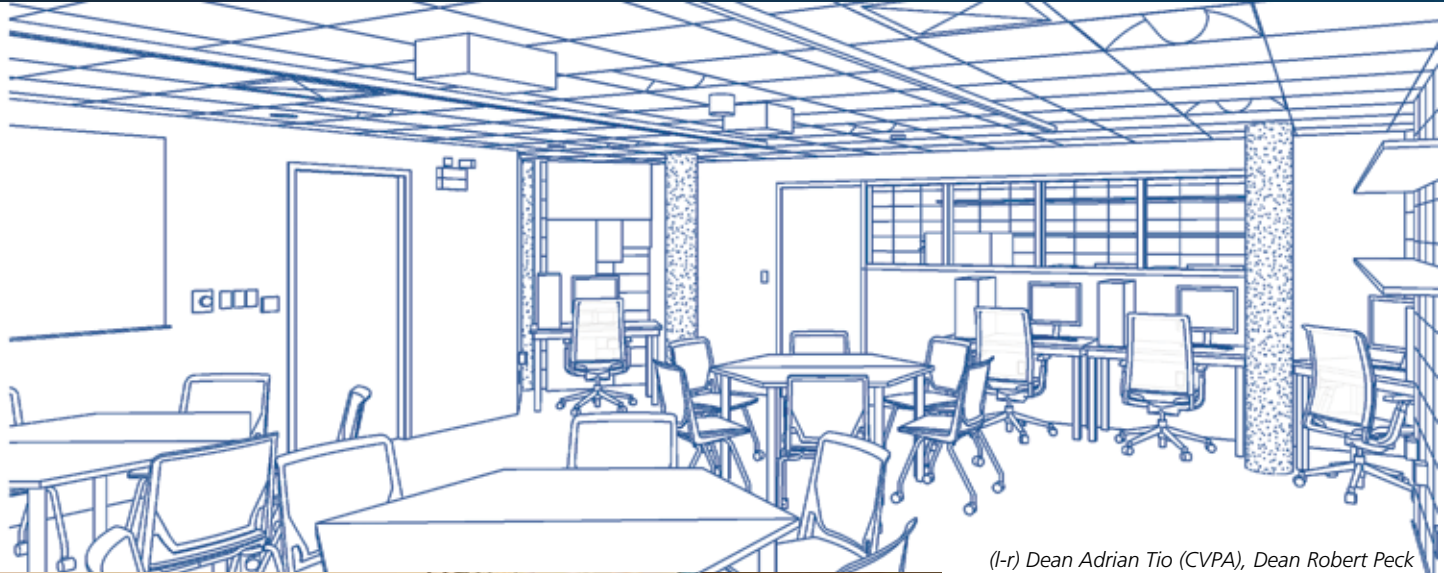
—John Berg

perspective. He says the "collaborative effort was helpful and nurturing." Immediately after graduation, Berg went on to pursue a career in product development working on spaceship engines. He later earned his Master's degree at MIT.

Berg is not just top-notch in the field of nano technology solutions, he is also a civic minded philanthropist invested in his community. The Carpe Diem facility is not only home to dozens of high tech machines and inventions but, also boasts an indoor soccer arena. In 2005, Berg saw the need for a soccer facility in the community not just so his own kids could have a place to play but, so the community—kids, men and women could have a year round facility. Seizing the day and solving the problem, Berg turned part of his warehouse into an indoor soccer arena. It's a year round, air conditioned facility for the Franklin Youth Soccer League and the Franklin Soccer School. It is home to pick up games, adult leagues, clinics and summer camps.

Berg is clearly proud of his family and that he has been able to make a difference in the lives of his employees. "Making a difference in people's lives has been personally and professionally fulfilling." The Beacon of Freedom was an important project for Berg and the Carpe Diem organization. "It is important not just for the technical movement but more so to be a part of a permanent landmark is amazing." As an engineer and business entrepreneur, Berg has some good advice for UMass Dartmouth students. "Education never stops and you always get out of things what you put into it. Don't be afraid to get in and, get in deep."

The next big project for Carpe Diem is "in our sights," says Berg. They hope to produce new lighting for Niagara Falls.



(l-r) Dean Adrian Tio (CVPA), Dean Robert Peck (COE), Chip Hildreth '85, Chancellor Divina Grossman, Sue Hall '85 and Provost Mohammad Karim celebrate the opening of the IDEASudio on September 16th.



IDEASudio

Innovation, Design, Engineering and Art

UMass Dartmouth together with Sue Hall '85 and Norm 'Chip' Hildreth '85 officially opened the Innovation, Design, Engineering and Art Studio (IDEASudio) on campus September 16, 2013. The Studio is a place where arts and engineering students may work collaboratively on projects and innovative research.

Sue Hall and Chip Hildreth both feel a strong loyalty to UMass Dartmouth. As undergraduates they realized the art community and the engineering community didn't cross paths very often. They felt the University community could benefit from a collaborative effort by bringing artists and

engineers together. Flash forward to 2013.

Sue Hall, an artist and educator, is hopeful the IDEASudio will "be a space to provide the social expression of creativity and collaboration." She believes that the IDEASudio will enable students to learn life skills as well. Her anticipation is that "students will gain awareness and become more tolerant," she says, and that will translate into becoming better citizens. Chip Hildreth is hopeful that the IDEASudio is "the beginning of something even bigger." Hildreth says that "artists and engineers work together in the real world" and this collaborative approach must be encouraged

sooner. If we "get students to cross over to other disciplines, they can start the collaborative movement and we can watch it spread across campus," says Hildreth.

Donald Foster, BSME '72, Instructor and Laboratory Manager in the Mechanical Engineering Department and Professor of Senior Design, is excited about bringing the arts and humanities into collaboration with engineering. "The IDEASudio will have state-of-the-art-lab equipment including a 3D printer that will enable the students to make unique components. The concept of the lab is innovative and fascinating," says Foster.

Chancellor Professor Harvey Goldman, Head of the Digital Media Department in the College of Visual and Performing Arts thinks "merging the fields of science and engineering with artists will be a tremendous help to the University. I'm dreaming about what could be", said Goldman.

Both Hall and Hildreth feel it is essential for students to have formal instruction but see the value in providing the space and materials for discovery. Hildreth stresses the importance of students learning within a curriculum and the significance of "allowing free time to explore" less traditional ways of learning. The IDEASudio at UMass Dartmouth was created to encourage and support multidisciplinary avenues for undergraduate and graduate students. The IDEASudio ribbon cutting ceremony this month marked the beginning of a new venture on campus.



It's all in a name...

Center for Scientific Computing and Visualization Research



The UMass Dartmouth Center for Scientific Computing and Visualization Research opened in January 2013, but has been unofficially coming together for more than a decade. According to Dr. Sigal Gottlieb, Director, the Center “unites faculty members from across campus whose research and expertise is in scientific computing.” Scientific computation has become a central part of modern science.

High performance computers (HPCs) are a huge component in the research being done at the Center. Dr. Gottlieb explains that HPCs have “transformed the nature of scientific investigation and this type of computation is now used for the simulation of complex problems.” This type of technology is used to solve problems from weather predictions, design of airplanes and engines to the study of star formations.

Mehdi Raessi, member of the Center’s research team and Professor of Mechanical Engineering says the collaboration between the colleges and departments of science, math, engineering and physics, in different combinations, brings new ideas, new projects and provides “solutions to problems.” Dr. Raessi is working on several National Science Foundation (NSF) funded projects including a marine renewable energy effort depicting energy extraction from waves using a computational tool.

The tool simulates how the design would work. The project brings science, civil and environmental engineering professionals together and the center facilitates the process. The Center “is helpful to me as a faculty member because senior faculty members are available and there are a lot of mentor/mentee relationships”

Dr. Gottlieb explains the Center is more than just a scientific building. “It is a great clearing house that provides space to work in and provides a University structure to support scientists and faculty.” The Center does more than force faculty and students out of their own college or department. It is a multidisciplinary effort merging information, mentoring younger faculty and working on funding for the center collaborating on research grants.

Dr. Gaurav Khanna, Assistant Center Director and Professor of Physics helps support the operation of the Center. He says the “computational center uses high speed computers to solve scientific and engineering problems.” Dr. Khanna helps maintain the information technology, assists with funding to maintain the computers and

(l to r) Center collaborators gathered here include Dr. Gaurav Khanna, Dr. Mehdi Raessi, Dean Robert Peck, Dr. Sigal Gottlieb, Dr. Robert Fisher, Francois Corradino (of IBM), Dr. Geoffrey Cowles and Madhav Ponamgi (of IBM)

aids to organize seminars and guest speakers. He said students are able to be mentored utilizing various engineering departments- civil, electrical marine sciences, physics and math. “It is a diverse group sharing a common space to interact with other disciplines to have an interdisciplinary effect.”

Since its official opening, the Center has been able to promote and conduct high-level “interdisciplinary and multidisciplinary research in the specialized field of scientific computing and to mentor undergraduate and graduate students in a supportive, broad, and deep interdisciplinary research environment,” says Dr. Gottlieb. The Center for Scientific Computing and Visualization Research will support, facilitate, and advertise the activities of the scientific computing group. This group is comprised of researchers and educators from Mechanical and Civil Engineering, Mathematics, Physics departments and from the School of Marine Science and Technology. Collaborative research occurs between the members of the scientific computing group and with researchers at other Universities.

The Center for Scientific Computing and Visualization will continue to support faculty research and work closely with IT to keep UMass Dartmouth at the forefront of high performance computing and visualization specialties and markets.

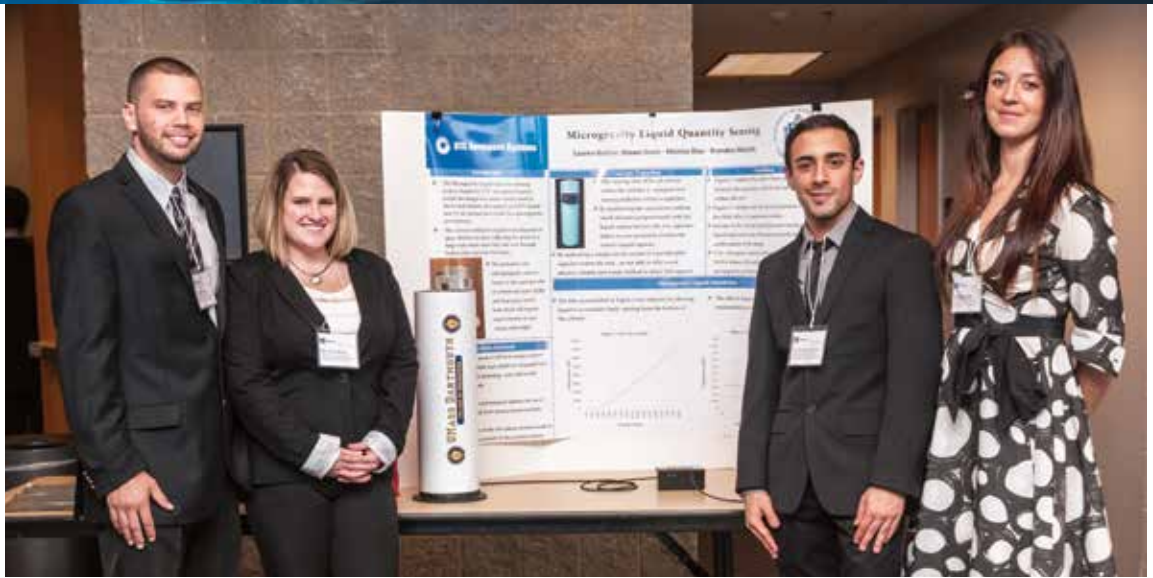
The College of Engineering Advisory Board



The Advisory Board has been instrumental in informing the College’s strategic direction and we are grateful for their contributions.

(standing l-r) Associate Dean Ramprasad (Ram) Balasubramanian (Bala); Ray Bellefeuille ‘67, *President, Phoenix Logistics, Inc.*; Chris Rezendes, *President, Inex Advisors*; Teak Macedo ‘82, *Founder & Managing Director, Phoenix Aerospace Consulting Group*; Lara Stone, *Senior Philanthropic Officer, UMass Dartmouth Foundation*; Sanford Russell ‘82, *General Manager, GPU Computing Software, NVIDIA*; Norm (Chip) Hildreth ‘85, *Senior Vice President, Hittite Microwave*; Kevin Brewer ‘81, *Executive Vice President, Global Operations, Axcelis*; Carol Rego ‘82, *Senior Vice President, CDM Smith, Inc.*; Michael Joyce ‘85, *CEO, PrimaLoft, Inc.*; David Sluter ‘79, *CEO, New England Construction, Inc.*

(seated l-r) Dean Robert Peck; Bill Brum ‘85, *Section Head, Advanced Manufacturing Technology, Procter & Gamble Co., Inc.*; Pierre Corriveau, *Ph.D., Chief Technology Officer (CTO), Naval Undersea Warfare Center (NUWC) Newport*; Tom Jarbeau, *Director and General Manager, Lockheed Martin Sippican, Inc.* Not pictured: Kevin Thibault ‘85, *Vice President and Market Development Manager, Parsons*



(l-r) Shawn Davis, Lauren Bolton, Brandon Macedo and Monica Diaz with their senior Capstone project.

Breaking with gravity

A team of 2013 UMass Dartmouth mechanical engineering graduates may see their work used in space, after they delivered a creative solution for measuring liquid in micro-gravity environments that surprised and delighted aerospace company United Technologies Corp.

Team leader Monica Diaz, of Puebla, Mexico, along with Shawn Davis, of Freetown, Lauren Bolton of Sandwich, and Brandon Macedo of Swansea, spent their senior year working on a solution for measuring liquid in a micro-gravity environment, i.e. outer space, as part of the university's annual capstone project program. The project was created by company sponsor, UTC Aerospace Systems.

The challenge, related to a NASA request for proposals, was to help the space administration determine when astronauts' urine bags became full and needed to be emptied. It is a problem because in environments without gravity, liquid floats freely within a container, forming globules that intersperse with air.

While UTC took the project to UMass Dartmouth, the company also assigned it to a team of their own engineers working in Houston.

The lack of gravity instantly takes simple solutions like weighing the container's contents off the table, said Don Foster, of the UMass Dartmouth mechanical engineering department. Using a sensor to determine the level of the liquid in a bag is also not a workable

idea, because liquid does not collect at the bottom of the bag in a micro-gravity environment.

"It took us a while to even break apart from the idea of gravity," agreed Diaz, echoing team comments that the initial brainstorming process was sometimes frustrating.

The breakthrough came unexpectedly from ping pong balls.

Although the team had plenty of ideas, they could not test them without first re-creating a micro-gravity environment—impossible without a much bigger budget than they had.

But they discovered that by filling some ping pong balls with water and others with air and placing them

randomly within a sealed container, they could accurately simulate the mix of liquid globes and air that form in space.

Because the final solution may become company proprietary information, the team was limited in its ability to provide details of what

they ultimately came up with and how their sensor measured the liquid. However, Thomas Stapleton, UTC Aerospace Systems Space System principal investigator and the UMD team's liaison, said it was a nontraditional solution that is very competitive with what UTC's Houston team developed.

"We have a different answer," he said about the Houston solution. "I think the team nailed it. Their solution was unexpected and in some ways simpler than the one the guys in Houston developed."

"It took us a while to even break apart from the idea of gravity,"

—Monica Diaz

But midway through the year, the UMD team was feeling anything but confident as they approached their first face-to-face meeting with UTC engineers.

Walking into the Connecticut headquarters of one of the largest aerospace companies in the country, their anxiety was high and rose even higher when they compared their Home Depot-purchased props—a toilet flange, PVC pipe, and ping pong balls, to the high-tech environment surrounding them.

It was possible, the team discussed on the drive to Windsor Locks, CT, that everything they were planning to present had already been considered and possibly rejected by experienced UTC engineers.

"We thought they were just going to shut us down at the end," said Diaz, remembering her anxiety.

"We were so nervous," agreed Davis. "We were surrounded by the top in the industry and we had to present to four or five people we had never met face-to-face before."

They shouldn't have worried.

UTC engineers may have seen a lot in their years of developing aerospace solutions, but they hadn't thought of UMD's approach to the problem or their way of testing it. They were delighted.

UTC staff got so excited that they turned the presentation into a brainstorming session, students said.

"They all crowded around us, giving us feedback and saying you can try this or this," said Davis. "They were just so excited."

"They said what you're giving us today is what is usually given at the end of a project," said Macedo.

UTC Aerospace Systems liked the team's final solution so much they are looking to patent it and use both it and the Houston-engineered solution on a design that will be tested in orbit. The UMASS solution may become part of the company's Universal Waste Management System flight design which will likely become the industry standard in space travel, Stapleton said.

The UMD team was professional both in its systematic approach to the problem, follow-through and the team's presentation, said Stapleton.

"You could tell they wanted to do this right," he said. "They very much emulated what I would expect of professional engineers."

Foster agreed.

"They approached the problem and the solution to the problem very creatively," he said. "In terms of creativity, (they) blew away the competition."

Although UTC hadn't worked with UMD students previously, Stapleton didn't hesitate when asked if the company would do so again.

"We will go back," he said.



Engineering & Entrepreneurship

Thank you to UMass Dartmouth College of Engineering and Charlton College of Business alumni. You helped make our Chancellor, Dr. Divina Grossman's vision of Inauguration week, April 2013 a reality. By celebrating the successes of our graduates and the work you are doing out in the world, others can be inspired to do the same!

(top row l-r)

Sanford Russell '82,

Director of Marketing, GRID Business, NVIDIA;

Dr. Michael Goodman, *UMass Associate Professor and Chair, Department of Public Policy;*

Jim French '78, *President of Research & Development, Panasonic;*

Bob Tavares '85, *President, Crane Electronics*

(bottom row l-r)

Chancellor Divina Grossman;

Chuck Charlton, *Founder Charlton College of Business;*

Karen Dendy Smith '85, *Co-founder and Principal, kor group*

Faculty Spotlight

Faculty throughout the College of Engineering continue to devote themselves to innovation and mentoring in their research and teaching.

Bioengineering

Dr. Christopher Brigham joined the faculty of the Bioengineering Department in 2012. Dr. Brigham's research is devoted to investigating how compounds that were originally produced by industrial chemical methods can now be produced by microorganisms. He has a Ph.D. in Molecular Biology and Microbiology from Tufts University School of Medicine and a Bachelor's degree in Chemical Engineering from Villanova.

In our last newsletter we highlighted the regenerative zebrafish research of **Dr. Tracie Ferreira**. Join us in congratulating her on her recent tenure appointment. She continues to conduct research and engage our students in comparing the evolutionary conservation of genes and proteins of zebrafish, hoping to apply what is learned in this model to various goals in bioengineering.

Computer and Information Science

The College of Engineering CIS Department hosted another great summer of Computer Science camps on campus. Partial funding was provided through the Community Foundation of Southeastern Massachusetts. Student and parent feedback shows we exceeded expectations.

Welcome **Firas Khatib**, Assistant Professor for Computer and Information Science who will begin this fall. Dr. Khatib received his Ph.D.

in Bioinformatics from the University of California Santa Cruz in 2008 and his bachelor's degree in Applied Mathematics from UC Berkeley in 2001. His research interests include computational biology, protein structure prediction, and citizen science. Firas was awarded a Postdoctoral Research Fellowship in Biology from the National Science Foundation to work on the protein-folding game Foldit.

Congratulations to **Dr. Ramprasad (Ram) Balasubramanian (Bala)** on his recent promotion to rank of full professor and his new role as Associate Dean of the College of Engineering. Dr. Balasubramanian continues his Office of Naval Research (ONR) funded research on multi autonomous underwater vehicle (AUV) cooperation in collaboration with the Naval Undersea Warfare Center (NUWC, Newport RI) as well as his work on other funded projects.

Civil Engineering

The student chapter of the American Society of Civil Engineers hosted the spring 2013 New England Regional Concrete Canoe Competition. Student chapters from 11 colleges participated at Apponagansett Park in Padanaram Harbor on April 27 with their concrete canoes. Student design submissions and oral presentations are given to a team of judges.

Dr. Mazdak Tootkaboni's research is multidisciplinary

and lies at the intersection of computational mechanics and applied probability and statistics. His research is funded by two National Science Foundation (NSF) grants. He conducts collaborative research with two colleagues, **Dr. Mehdi Raessi** (ME) and **Dr. Geoff Cowles** (SMASST) on a grant of \$368,221 awarded in July 2012 to develop an advanced computational tool for analysis and optimization of ocean wave energy converters. He is also funded by a NSF grant of \$215,255 to develop a probabilistic paradigm for advancing analysis-based design of thin-walled structures. Dr. Tootkaboni has a PhD in Structural Mechanics from Johns Hopkins University.

Congratulations to the Highway Sustainability Research Center (HSRC) for recent awards/agreement totaling \$800K over the next two years. The HSRC is directed by **Professor Walaa Mogawer**, P.E., F. ASCE from the Civil and Environmental Engineering Department. The HSRC under these new agreements will continue its efforts in evaluating and developing pavement preservation strategies and pavement materials that are sustainable, environmentally friendly, and cost effective. Two of the agreements are with the New England Transportation Consortium and one agreement is with Massachusetts Department of Transportation and the Federal Highway Administration.

Electrical and Computer Engineering

US News and World Report ranked the UMass Dartmouth Electrical Engineering graduate program number 122 nationally. It is tied with the electrical engineering program at our sister school, UMass Lowell. This is the first time a major graduate program at UMass Dartmouth has been ranked nationally by *US News and World Report*.

Dr. Paul Gendron joined the faculty of the ECE Department in 2012. Dr. Gendron received his PhD from Worcester Polytechnic Institute, his MS from Virginia Tech and his BS from UMass Amherst, all in Electrical Engineering. His research focus is in the field of statistical signal processing, detection and estimation theory. He was with the Naval Research Laboratory from 2000 to 2007 and with the Spawar Systems Center Pacific from 2008 to 2012. Dr. Gendron presently conducts research for the Office of Naval Research related to the discovery and invention of enabling technologies for undersea surveillance.

Dr. Honggang Wang is the Senior Guest Editor for a special issue of the October-November *IEEE Journal of Biomedical and Health Informatics*. Dr. Wang's research interests include networking, wireless sensor networks, multimedia communication, network and information security, software engineering and programming,

embedded sensory system, biomedical computing, and pattern recognition. He received his Ph.D. in Computer Engineering at the University of Nebraska–Lincoln.

Welcome to **Lance Fiondella**, Assistant Professor of Electrical and Computer Engineering who will begin teaching this fall. Prior to joining UMass Dartmouth, he held postdoctoral appointments at UConn and the Royal Melbourne Institute of Technology. His research interests include reliability and transportation engineering. He has published over 40 articles in peer reviewed journals and conferences, four of which have been recognized with awards. Dr. Fiondella received his Ph.D. in computer science and engineering from the University of Connecticut in 2012.

Congratulations to **Dr. Liudong Xing** on her recent promotion to rank of full professor.

Mechanical Engineering

Congratulations to **Dr. Mehdi Raessi** who was recently awarded a three-year NSF grant for a \$214,583 computational research project focused on icing on wind turbine blades. His work will focus on analysis and design of textured super-hydrophobic surfaces capable of preventing ice formation. He will serve as the principal investigator on this collaborative research project with two colleagues from UMass Amherst. Dr. Raessi has a PhD in Mechanical Engineering from the University of Toronto.

Check out the newsletter article in this issue about a Mechanical Engineering Senior Capstone Design Team solution for measuring liquid in outer space. The project was sponsored by UTC

Aerospace Systems and will directly support a NASA project.

Physics

Congratulations to **Dr. Gaurav Khanna** who was recently awarded a two-year \$78K NSF research grant to computationally model the capture of small astrophysical objects (stars or black holes) by supermassive black holes that lurk at the center of most galaxies. This is of direct relevance to several observatories worldwide that are attempting to make the first ever detection of gravitational waves—these were predicted by Einstein nearly a century ago, but have not been directly observed so far. He will serve as the principal investigator on this project, and will support a doctoral student. Dr. Khanna has a PhD in Physics from Penn State.

Dr. Grant O’Rielly was one of three UMass Dartmouth professors out of 11 UMass faculty members state-wide who have received grant funding from The Creative Economy Initiatives Fund. O’Rielly’s “The Music of the Spheres” project will receive \$33,300 and use the May 2014 New Bedford Symphony Orchestra’s performance of Gustav Holst’s “The Planets.” Dr. O’Rielly has been awarded an additional \$249,695 from the NSF to engage undergraduate students and other regional colleges in his research program at the MAX-lab in Lund, Sweden for the next three years.

Memorials

Gilbert Fain PhD.,

Chancellor Professor Emeritus,
Electrical Engineering

Professor Fryderyk E. Gorczyca,
Mechanical Engineering

Professor Milton Young,
College of Engineering



Music Education Professor, Dr. Marie Nelson in Ghana with Capstone Senior Design Team members David Hallahan '13 and Lui Elamir '13.

A collaborative approach

Dr. Howard Michel’s Electrical Engineering Capstone Senior Design students partnered with Music Education **Professor Marie Nelson** and a property owner in Ghana, Joseph Gyimah. The team was asked to create electronic charging stations capable of charging small devices such as cd players and cell phones, but especially flashlights. Flashlights are particularly significant as they can be powered at the school complex during the day, and then used by the children for reading and homework in their dark homes at night. In the villages and tribes near Jamasi, the Ashante District of Ghana, West Africa, darkness exists for twelve hours daily, year-round.

On April 30 students **Lui M Elamir '13, David L. Hallahan '13, and Kofi Owusu '13**, advised by Professor Robert Helgeland, completed their assignment. The team was awarded first place in the Senior Design Competition, where the actual flashlights were demonstrated to the judges and audience. Funds were raised to transport some members of the team, as well as the components of the system, to Ghana, where they installed the solution on site.

Thanks to these UMass Dartmouth engineering seniors, when each child in Jamasi was given a school backpack this year, it contained a flashlight—an aesthetic and practical symbol of furthering their education, a known solution to the poverty and illiteracy of their villages. In one student’s words, “I went to Ghana thinking I would help children change their lives, but the reality is that they changed my life.”



Family Matters

David Sluter '75 is committed to his family, his company, New England Construction, and the UMass Dartmouth community. Sluter says the “unbelievable education” he received from UMass Dartmouth prepared him well for life and his career and propelled him to give back to the University. Sluter graduated from UMass Dartmouth with a Bachelor of Science Degree in Civil Engineering and is also a graduate of the Harvard Business School Owner/President Management Program.

Sluter has always been full of entrepreneurial spirit. He has been a consulting and registered professional engineer throughout New England for over 20 years, continuously learning through hard work and practical experience. Early in his career, he worked for a contracting company where he met and exceeded his boss's expectations and decided if he could oversee plans, specs and construction for someone else, he could do it for his own business.

In 1985, Sluter founded New England Construction (NEC), a general contracting company providing pre-engineered steel building and services to large contractors and private clients in the commercial and industrial markets. NEC works with the automotive industry, commercial office spaces, educational institutions, the golf and hospitality industry, healthcare facilities, industrial manufacturing facilities, retail buildings and multi-unit housing facilities. Sluter, as Chief Executive Officer, has remained true to the same founding values of “integrity, excellence and commitment to every customer.” Focused on bringing those values to each project, the company grew steadily. With each undertaking, New England Construction remains open to learning, valuing accountability and adaptability in every project.

New England Construction is a leader in building auto dealerships throughout New England. Sluter says this niche market has kept them very busy. “We have built 40 dealerships in the last 5 years.” The newest of which is part of the Village Automotive Group located in North Attleboro, Massachusetts. NEC constructed a 33,000 square foot, two story building comprised of a showroom,

management office, sales office, customer service area and parts, storage and service department with 19 bays. NEC was also a part of the first Leadership in Energy and Environmental Design (LEED) certified auto dealership in America. LEED is a rating system for the design, construction and operation of high performance green buildings, homes and neighborhoods. Smart Car, located in Fairfield, Connecticut, hired NEC to build two dealerships.

New England Construction recently managed a historic renovation at Weekapaug Inn located in Westerly, Rhode Island. The Inn is listed on the National Register of Historic Places and NEC needed to adhere to standards to maintain the classification. The nearly 20 million dollar project included “many new features while preserving the charm and character of the original 1939 structure,” he said. The Inn now has a private waste treatment facility to properly handle sanitary sewer needs in this environmentally sensitive area and a 25-yard lap pool is heated from the geothermal wells on site. In addition to the interior work and the new pool, NEC renovated the exterior of the building as well.

New England Construction's mission is to grow with the help of their customers by providing clients the help they need to plan and manage their building needs. New England Construction's staff comprises engineers, architects, contractor specialists and office support personnel. NEC truly is a family business. Marge Sluter has worked by her husband's side since the inception of the company over 25 years ago. Marge has developed and managed New England Construction's financial operations as the company has grown. These days, Marge sometimes trades her CFO hat for that of Chief Grandma. Over the years, Sluter's three sons have all taken on leadership roles within the business. Steven Sluter, the eldest, is in charge of estimating for the construction side of the business. Ethan Sluter, the middle son, takes an active leadership role in the real estate side of the business. He works closely with his father managing Bourne Avenue Capital Partners. Matt, the youngest Sluter son, is the Vice-President of New England Construction and responsible for new business development for the company. The foundation beneath all that Sluter, his family and New England Construction creates is integrity.



The Weekapaug Inn in Westerly, RI



Alumni legacy support at work

David Sluter '75 and his family-run business New England Construction, Inc. is committed to UMass Dartmouth and giving back to the College of Engineering. Sluter was inspired by a mechanical engineering student speaker, Monica Diaz '13, at last year's College Now/START program banquet. The Sluters always wanted to give back to the University and he said, "this program seemed to be the perfect fit." Sluter and his company have made the philanthropic commitment to fund a scholarship this academic year. The Sluters generous donation will support full tuition and fees for an engineering student enrolled in the College Now/START program.

The College Now/START program is an alternative admission program at the University designed to provide students with a chance to succeed and receive extra academic, administrative and social support they may require. The students that participate in the

College Now/START program are fortunate to work with specialized support staff to help them navigate a successful path at the University.

"The College Now/START program is filled with kids that have taken their lives out of neutral or reverse and put things into a complete forward for themselves," he said. Sluter made a financial commitment for a deserving engineering student but, the connection he made was bigger than his investment. "The return on my investment is not measured in money but, rather in the difference made in the life of that student."

The return on my investment is not measured in money but, rather in the difference made in the life of that student.

—David Sluter

Together, we can leave a legacy for the next generation. Your gift can ensure that students like Monica Diaz '13 (story on pg. 6) continue to become the next leaders in the field of engineering. To make a contribution to the College of Engineering, please visit www.umassd.edu/donate or email Lara Stone, Senior Philanthropic Officer for the college of Engineering lstone@umassd.edu or call 508.999.8372.



One of many who shines...



Congratulations to Lauren E. Underwood '13, a civil engineering major and an active member of the UMass Dartmouth community. Lauren was chosen as one of 29 students who excels in her field of study across the state.

The Massachusetts Department of Higher Education kicked off the 2013 college commencement season by honoring the winners of the 29 Who Shine Awards, recognizing 29 public college and university students for their academic achievements and civic contributions to the Commonwealth. The students, one from each of the state's 29 community college, state university and UMass campuses, were recognized by Governor Patrick in a State House ceremony on Thursday, May 2, 2013.

Lauren was the Lead Ambassador in the Admissions Office, becoming one of the first faces seen by prospective students and families. Within the Engineering College, Lauren was the student representative on the Civil Engineering Committee and the Undergraduate Engineering Student Council. She was also Secretary of the American Society of Civil Engineers, Chairperson of the NE Regional Concrete Canoe Competition, and a member of Engineers without Borders. Upon graduation she began work as a civil engineer at North Star Industries in Methuen.

Together, we'll help more students shine.

Please visit www.umassd.edu/donate or contact Lara Stone, Senior Philanthropic Officer for the College of Engineering lstone@umassd.edu or **508.999.8372** to find out more.

We'd like to hear from you...

Please update your contact information. Our goal is to get email addresses for all College of Engineering alumni. You may email your information to coe@umassd.edu or mail to College of Engineering, UMass Dartmouth, 285 Old Westport Rd., Dartmouth, MA 02747-2300.

College of Engineering Newsletter

Publisher	Dean, Robert Peck, Ph.D.
Editor/writer	Lara Stone, Senior Philanthropic Officer UMass Dartmouth Foundation
Writers	Cara Connelly, Beth Perdue, <i>The Standard Times & Southcoast Business Bulletin</i>
Photographers	Deirdre Confar, Marie Nelson, Chip Riegel, Jennifer White