

OUTLOOK

CIVIL & ENVIRONMENTAL ENGINEERING



UNIVERSITY OF
DELAWARE

ISSUE NO.1

TABLE OF CONTENTS

- ▶ LETTER FROM THE CHAIR
- ▶ DEPARTMENT NEWS
- ▶ FACULTY PROFILE
- ▶ ALUMNI INTERVIEWS
- ▶ MAKE A GIFT

LETTER FROM THE CHAIR

Welcome to **OUTLOOK**, the new electronic version of the Civil & Environmental Engineering (CEE) newsletter.

It's been a few years since we published a hardcopy version and in that time we made the decision to switch to an electronic format. I think you will find it easy to navigate and full of exciting information!

May brought the end of another academic year, and with it a new class of CEE graduates. We said good bye to more than 100 civil and environmental engineering majors and a combined X Masters and Ph.D. degrees. Looking ahead, we welcomed the largest UD freshman class in history to campus just a few weeks ago. This holds true for CEE as well: when the engineering undecided students choose their major later this fall, I am projecting a civil class of between 90 and 100, and an environmental class of about 35.

On the research front, I'd like to mention just a few highlights from this past year. Professors Allen and DiToro received a \$1.8 million dollar grant this spring from the Department of Defense's Strategic Environmental Research and Development Program (SERDP) to develop mathematical models that will enable accurate prediction of the fate and transport of munitions constituents in soil. It is also with great pleasure that I write that two of our junior faculty received National Science Foundation (NSF) Career Awards this past spring: Professor Chris Meehan, for his investigation of the seismic behavior of slickensides surfaces, and Professor Jack Puleo, for his work in swash zone sediment transport. The NSF Career Award is one of the highest honors a junior untenured faculty member can receive.

The caliber of teaching in CEE remains outstanding and is something that we are all very proud of. This was recognized once again this year, with Professor Sue McNeil winning the college's Slocomb Excellence in Teaching Award. One of only two teaching awards given each year by the college, faculty from CEE have won the Slocomb award in 5 of the last 6 years.

The department continues to expand its presence, not only nationally, but globally. On the undergraduate level our students experienced Greece and Australia once again this year, through two engineering study abroad programs. At the graduate level, I had the opportunity to visit Taiwan in the spring to sign an agreement establishing a Dual Ph.D. Degree agreement with National Chung Hsing University. This sets up a formal mechanism for collaboration with researchers from NCHU, and to permit student exchanges.

Finally, I'd like to mention a few other items that are not discussed in the newsletter, but which you can read about on our [website](#). Our student chapter of ASCE hosted the regional Steel Bridge and Concrete Canoe competition this year. The two-day event in April drew 12 teams from the mid-Atlantic region. The student chapter did an outstanding job organizing the event, and by all accounts, it was a great success. I want to thank all the alum's that helped out with judging for the competitions. And this year the 4th annual Arnold D. Kerr lecture was delivered by Dr. Jeremy Isenberg, a world renowned expert in blast resistant design.

I hope you enjoy the newsletter. For more up-to-date information on the department, please go to our website at www.ce.udel.edu. As always, we are happy to hear from our alum, so please don't hesitate to call, email, stop by, or drop us a note and let us know what is happening in your personal or professional life.



Sincerely,

**HARRY (TRIPP)
SHENTON III**

PROFESSOR AND CHAIR

DEPARTMENT NEWS



ALLEN AND DITORO RECEIVE \$1.84 MILLION DOD GRANT

CEE professors Herb Allen and Dominic DiToro have received a four-year \$1.84 million grant from the Department of Defense's Strategic Environmental Research and Development Program (SERDP) to develop mathematical models that will enable accurate prediction of the fate and transport of munitions constituents in soil.

[CLICK HERE TO READ MORE //](#)



PULEO WINS PRESTIGIOUS NSF CAREER AWARD FOR 'SWASH ZONE' RESEARCH

Assistant professor Jack Puleo has received a prestigious National Science Foundation Faculty Early Career Development Award to study swash zone sediment transport. The swash zone is the area near the shoreline where waves wash up and down the beach face.

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CEE BIDS FAREWELL TO CLASS OF 2009

At the University of Delaware's graduation and convocation ceremonies on May 31, 2009, 79 students from the Department of Civil and Environmental Engineering received bachelor's degrees. The CEE class of 2009 included 71 graduates of the civil engineering program and eight in the environmental engineering program.

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UD ENGINEERS VISIT UNIVERSITIES IN COLOMBIA

A team of faculty members from the University of Delaware College of Engineering recently spent several days in Bogota, Colombia, where they met with presidents, deans, and department heads to forge new collaborations with their institutions.

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DEPARTMENT NEWS



UD'S ENGINEERS WITHOUT BORDERS WINS CLINTON GLOBAL INITIATIVE AWARD

The University of Delaware chapter of Engineers Without Borders (UD-EWB) has been awarded a prestigious Outstanding Commitment Award from the Clinton Global Initiative (CGI). The award carries with it a \$10,000 grant from the Wal-Mart Foundation to assist with UD-EWB's solar water pumping project in a rural village in Cameroon.

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CIVIL ENGINEERING ALUM INDUCTED INTO UD'S WALL OF FAME

Francis "Skip" Gardner, a civil engineering alum, was one of four alum recently inducted into UD's Wall of Fame. Gardner was cited for his work in construction and commercial development in the Baltimore region. He also serves on the Department's External Advisory Committee.

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KERR LECTURE ADDRESSES PROTECTION OF INFRASTRUCTURE FROM TERRORIST ATTACKS

Jeremy Isenberg, senior principal with AECOM and a member of the National Academy of Engineering, delivered the fourth annual Arnold D. Kerr Lecture in Engineering Mechanics to a crowd of about 250 in the University of Delaware's Mitchell Hall on May 5, 2009.

[CLICK HERE TO READ MORE //](#)



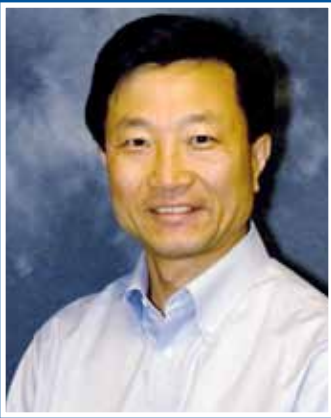
UD HOSTS REGIONAL STEEL BRIDGE COMPETITION

Over the weekend of April 18–19, 2009, the Delaware Field House at the University of Delaware was filled with engineers rather than athletes as UD's student chapter of the American Society of Civil Engineers (ASCE) hosted the Mid-Atlantic Regional Student Steel Bridge Competition.

Next year's competition will be held at Penn State.

[NEXT COMPETITION: APRIL 9–10, 2010](#)

NEW CEE FACULTY MEMBER BRINGS NEW PERSPECTIVE TO ENGINEERING EDUCATION



BINTONG CHEN, the newest faculty member in the Department of Civil and Environmental Engineering at the University of Delaware, feels strongly that an engineering education is necessary but not sufficient for today's world.

"Technical knowledge is very important," he says, "but having an understanding of business elements and communications skills is critical, especially for future leaders."

Chen's joint appointment in CEE and in the Department of Business Administration in UD's Lerner College of Business & Economics reflects his expertise in management and operations as well as engineering, and his unique background promises to open new doors and launch new programs at UD: He has bachelor's degrees in shipbuilding and electrical engineering, a master's in systems engineering, and a Ph.D. in decision sciences from the University of Pennsylvania's Wharton School.

Chen, who joined the UD faculty in September, is already working to set up expanded internship programs, initiate new collaborations with industry, and develop graduate-level courses for the influx of new professionals at the U.S. Army's facility in Aberdeen, Md.

"By adding a soft touch to our current engineering curriculum," Chen says, "we can better prepare our students for more versatile careers. Flexibility is important, as what our students do now may not be what they do in the future. I'm a perfect example of that—I learned shipbuilding as an undergraduate, and now I'm doing something totally different."

Chen sees UD and Delaware as an ideal place to carry out his vision. "As a major state university, UD is in the right position to serve the local community and local industry," he says, "and Delaware is in a very strategic location."

"Bintong Chen is a wonderful addition to our faculty," says CEE Chairperson Harry (Tripp) Shenton. "We're working hard to ensure that our students are fully prepared for the 21st century workplace, and the complementary skills that Prof. Chen can teach them are essential in this effort."

Chen was the Don and Mary Ann Parachini Fellow and Professor in the Department of Management and Operations at Washington State University, as well as honorary Dean of the School of Business Administration at Southwestern University of Finance and Economics in China.

His research focuses on optimization techniques and applications, including manufacturing, logistics, telecommunications, and transportation.

ALUMNI INTERVIEWS



BILL JOHNSON (BCE1999, MCE2001) is a Senior Bridge Engineer with FIGG in Exton, Pa. He is a registered Professional Engineer in Pennsylvania and a registered Structural Engineer in Illinois. He has experience in the design, inspection, and study of various bridge types and has worked on major bridge projects in several states, including emergency replacement of the I-35 bridge in Minneapolis after its collapse in August 2007. Johnson is the recruiting representative for FIGG's Northeastern Regional Office.

WHEN DID YOU REALIZE YOU WANTED TO BE A CIVIL ENGINEER IN GENERAL AND A BRIDGE ENGINEER IN PARTICULAR? WHAT INFLUENCED THAT DECISION?

▶ When I was entering high school, my Dad had a friend who was a civil engineer, and he thought it was a good fit for me. I thought it sounded interesting enough—designing roads and bridges sounded like a cool job. At that point in my life all I really cared about were video games and wiffleball, so I'm glad he steered me in the right direction. I always enjoyed tinkering with things and building Lego structures, so it makes some sense that I ended up in engineering.

HOW DID YOUR EDUCATION AT UD PREPARE YOU FOR WHAT YOU'RE DOING NOW?

▶ My bachelor's degree, and especially my master's degree, gave me a solid base to start my structural engineering career. After starting work at FIGG, I quickly found that I had much to learn about bridge engineering, but I had a good grasp of the fundamentals—which is what I gained from my years at UD.

FIGG IS KNOWN FOR DESIGNING BRIDGES AS WORKS OF ART. DOES THAT PHILOSOPHY MATCH YOUR OWN, AND WAS IT INSTRUMENTAL IN YOUR TAKING A JOB WITH FIGG AS OPPOSED TO WORKING FOR ANOTHER DESIGN FIRM?

▶ I had five job offers coming out of UD, and FIGG definitely impressed me the most with their reputation and the bridges they design. All of the offers were comparable, but it was a pretty easy decision to choose FIGG. What impressed me the most was their design philosophy of creating structures that are aesthetically pleasing, and at the same time structurally efficient. I enjoy being creative and using my artistic side, so FIGG was the perfect fit.

YOU'VE WORKED ON BRIDGES IN SEVERAL STATES. DOES YOUR JOB REQUIRE A LOT OF TRAVEL, OR ARE YOU ABLE TO DO SOME OF WHAT YOU DO FROM YOUR OFFICE IN EXTON EVEN WHEN THE PROJECT IS ELSEWHERE?

▶ As an engineer or designer in the design office, most, if not all, of our work is in the office. The exception is an occasional meeting that may require travel. Although we may be working on a bridge halfway across the country, all of our design effort happens in the office. We have access to the appropriate site survey information and typically work with a local geotechnical engineer for soil and rock design properties at the site.

In our company, we also have the opportunity to work as engineers or inspectors during construction and be on-site full-time. Sometimes assignments are a few months, or several years, depending on the project. A few years back, I spent a couple months in Maine and then went directly to a job in Ohio for 5 months.

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ALUMNI INTERVIEWS

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In Maine, I was on-site during construction of the Penobscot Narrows Bridge & Observatory. Being my first cable-stay bridge design experience, it was very exciting to be a part of this project. This was an especially satisfying assignment because I had worked on the design from the beginning. In the summer of 2006, I moved to Maine to be on-site and got to experience superstructure construction, cable-stay installation and observatory construction. I was in Maine towards the end of the construction and almost got to see it through to the end when I got the call for Ohio.

In Ohio, I worked on my second cable-stay project—the Veterans' Glass City Skyway in Toledo. They needed a Main Span Engineer for night-shift operations. With the experience I gained in Maine, I was able to take advantage of this opportunity in Ohio. Working at night had its challenges, as did working in single-degree temperatures every day over the winter. It was another good learning experience, as I was the only engineer on-site working with the inspection team during the night shift. I also was equipped with a digital SLR camera to take pictures of construction. Being a novice with these types of cameras, I learned on my own how to take pictures at night and proudly took some pretty good ones along the way. I've taken pictures that have been on two magazine covers (Civil Engineering by ASCE and Aspire by PCI) and also a concrete textbook. I even got a quick mention in a Roads & Bridges editorial.

My experiences in the field were both very memorable and valuable for my career. Being there to watch our designs being built, I learned lots of lessons that I wouldn't have if I was in the design office.

AMERICA'S INFRASTRUCTURE HAS BEEN GIVEN POOR GRADES IN THE ASCE REPORT CARD, WITH A LARGE PERCENTAGE OF BRIDGES DEEMED STRUCTURALLY DEFICIENT OR FUNCTIONALLY OBSOLETE. DO YOU HAVE ANY OPINIONS AS TO HOW THIS PROBLEM SHOULD BE APPROACHED?

▶ A lot of bridges have had their service life reduced because of lack of maintenance. Items such as painting, expansion joint replacement, deck replacement, etc.,

are all costly and disrupt traffic. Anything that we can do to make our bridges more maintenance-free will prolong their usable life. Bridges should be designed for their full service life to not need painting or a deck replacement. For longer structures, there should be a minimal number of expansion joints. These joints inevitably leak and can allow the corrosive mixture of road salt and water to damage the structure underneath.

IN TERMS OF EDUCATION, STUDENTS ARE NOT OFFERED MUCH IN MIDDLE AND HIGH SCHOOL THAT EXPOSES THEM TO ENGINEERING (EXCEPT FOR THE STANDARD "I WAS GOOD IN MATH AND SCIENCE, SO MY ADVISOR TOLD ME I SHOULD MAJOR IN ENGINEERING"). WHAT DO YOU THINK CAN/SHOULD BE DONE TO CHANGE THIS— I.E., TO BRING ENGINEERING TO K-12 STUDENTS? WHAT ROLE, IF ANY, SHOULD PRACTICING ENGINEERS PLAY IN EXCITING YOUNG PEOPLE ABOUT ENGINEERING?

▶ ASCE has a number of resources on their website for teachers to educate young people about engineering. There's also a number of outreach opportunities for practicing engineers. I think that it's just a matter of becoming more active in the community. Engineers aren't very visible in society when compared to doctors, lawyers, law enforcement agents, etc., so anything that we can do to get young people interested in engineering is a good thing. If I knew what engineering was in first grade, maybe I would've made a life-size Engineer instead of Police Officer for my "What do you want to be when you grow up" art project.

CAN YOU SHARE A FEW THINGS WITH US ABOUT YOUR PERSONAL LIFE?

▶ Since moving back to the area in 2007, I've gotten married and bought a house in West Chester. We got a fixer-upper, and have been working hard renovating it. We do most of the work ourselves, which I enjoy doing. My wife Cendy (also a UD graduate) and I also enjoy the beach, traveling, and of course UD football games in the fall! We'll be five-year season ticket holders this fall, and we look forward to cheering on an improved team this year.

ALUMNI INTERVIEWS



GEORGE LARSON (BCE1982) George Larson (BCE1982) is President of Larson Engineering Group and a registered Professional Engineer in Delaware and Maryland. He is a member of the Delaware Association of Professional Engineers and the Delaware Section of ASCE, where he has served as Section President (1996–97) and Board Member (1990–98). Larson has volunteered for several community organizations, including Newark National Little League, Meals on Wheels, the Food Bank, Habitat for Humanity, and Junior Achievement. He has also served on the Board of Directors for St. Marks High School.

WHEN DID YOU REALIZE YOU WANTED TO BE A CIVIL ENGINEER? WHAT INFLUENCED THAT DECISION?

▶ My math teacher (a nun at St. Mark's High School) advised me to go into engineering. I actually entered UD as a mechanical engineer. Not really knowing what each discipline of engineering did, I went to a workshop trying to decide between a mechanical and a civil engineering career. The mechanical engineer was designing a clutch and the civil was designing a ski-lodge. That sold me (not that I am designing ski-lodges).

HOW DID YOUR EDUCATION AT UD PREPARE YOU FOR WHAT YOU'RE DOING NOW?

▶ My UD education prepared me with the basics for beginning your engineering career. It gives you the technical knowledge that you need to enter into the profession. After that, you really need to continuously learn and grow as you advance in your career. I really didn't get any business training at the University. The curriculum was so structured back then it didn't really afford you the opportunity to take too many business courses. It has been 27 years since I graduated so things may be different now, but if I were to give any advice to wise sages such as Tripp Shenton now running the department I would include one or two business courses as part of the curriculum.

WHAT SPARKED YOUR DECISION TO START YOUR OWN BUSINESS IN 1996 AFTER WORKING FOR OTHERS FOR MORE THAN A DECADE?

WHAT IS THE MOST REWARDING ASPECT OF HAVING YOUR OWN BUSINESS? THE MOST CHALLENGING?

▶ I decided to start my own business because I didn't agree with the business philosophy of my previous employer. It was an amicable split but I felt I was ready to move on. The most rewarding aspect of owning your own business is that you are involved with every aspect of the business. From marketing, design, review, accounting etc. Ironically that is also the most challenging. Sometimes it's tough to tell a long time client that you need to be paid in order to proceed with their project. I always had plans of someday owning my own business. I was fortunate to choose the right time to do it.

IN TERMS OF EDUCATION, STUDENTS ARE NOT OFFERED MUCH IN MIDDLE AND HIGH SCHOOL THAT EXPOSES THEM TO ENGINEERING (EXCEPT FOR THE STANDARD "I WAS GOOD IN MATH AND SCIENCE, SO MY ADVISOR TOLD ME I SHOULD MAJOR IN ENGINEERING"). WHAT DO YOU THINK CAN/SHOULD BE DONE TO CHANGE THIS— I.E., TO BRING ENGINEERING TO K–12 STUDENTS? WHAT ROLE, IF ANY, SHOULD PRACTICING ENGINEERS PLAY IN EXCITING YOUNG PEOPLE ABOUT ENGINEERING?

▶ Engineers are getting more involved with students at the Junior High and High School levels. There are programs out there such as MathCounts that are run by the engineering societies.

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ALUMNI INTERVIEWS

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There also is or was an Adopt a School program where engineers visited junior high level students and spoke about engineering. It may be beneficial for engineering colleges such as the one at UD to include practicing engineers on their recruiting trips to high schools. I would strictly focus on high school students. Any students younger than that need to know the importance of a strong math and science background.

CAN YOU SHARE A FEW THINGS WITH US ABOUT YOUR PERSONAL LIFE?

I've been married to Michele (Lehane) for 26 years. She is a 1982 graduate of UD with a degree in consumer economics. We have two kids—our daughter, Jennifer, graduated from the University of Notre Dame in 2007 with a degree in finance, and our son, Packer, just transferred to the University of Delaware from Gettysburg College, where he played football and baseball until injuries forced him out of both. My hobbies include golfing and spending time with family and friends at the beach.

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ALUMNI EVENTS BY VISITING
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WHY GIVE TO THE COLLEGE OF ENGINEERING?

Charitable contributions by individuals, companies, and foundations provide the College of Engineering with the resources that assure vitality and growth in teaching and research programs. During fiscal year 2009, the College received \$3 million in private contributions, which provided student aid, equipment, teaching facilities, and support for research.

For Fiscal Year 2010 (July 1, 2009, to June 30, 2010), Dean Michael J. Chajes has announced several goals that will help the College excel in new ways:

- Raise alumni participation from 14% to 17% (400 new alumni donors). Colleges and universities of our size and stature average 25% alumni participation.
- Earn the support of at least fifty (50) new members of the Delaware Diamond Society. Donors give at least \$1,000 annually to engineering departments and programs. This will establish a new contingent of leaders who make the College of Engineering a high priority in their annual giving.
- Complete plans and begin fund raising for a new Interdisciplinary Science and Engineering Building. Groundbreaking is scheduled for May 2011. This College has been charged with raising \$12 million in private support toward the successful completion of this project.

Thank you for your consideration. For further information please contact Armand Battisti, Director of Development, College of Engineering at (302) 831-7273, fax (302) 831-8179, or aab@udel.edu.

Employer matching gifts can multiply your financial support to the College. [CLICK HERE](#) to see if your company has such a program.

Thank you for your support of the College of Engineering! It is both needed and appreciated.

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