

Alumni Registration & Updates

The Department of Civil and Environmental Engineering is always interested in how our alumni are doing. We hope you will take time to send your updates to jmueller@lsu.edu or, if you prefer, you can "snail mail" them to

**Department of Civil and Environmental Engineering
Louisiana State University
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Baton Rouge, LA 70803-6405**

Please include basic information such as your full name, year of graduation, degree, mailing address, email address, telephone number, company, and your title/position. For your update, please include information on your recent professional and personal developments, along with a high-quality photo if available.



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Go to <http://www.facebook.com/LSUCEE>
and click "like" for news and updates from the Department!

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this issue

Student Highlights	P. 2
Cothren Fellowship	P. 3
Alumni Corner	P. 4
Measuring Wave & Storm Surge	P. 5
Driving Simulator	P. 6
Faculty Highlights	P. 8
Forever LSU Campaign Wrap Up	P.10
Walmart Donates New Lab Equip	P.11
GEC Donates Furniture	P.11

Message from the Chair

In June 2006, the university officially embarked on the most ambitious fundraising campaign in the school's history: Forever LSU, the Campaign for Louisiana State University. The Department of Civil and Environmental Engineering launched its corresponding campaign with a reception hosted in the home of Wilfred and Shelley Barry. The CEE Campaign Steering Committee was formed to attract others and provide leadership to the effort. Many alumni and friends demonstrated their support through generous gifts which enabled us to pursue this loftiest goal in our Department's history.



We sincerely thank you not only for your contributions throughout the campaign but also for your continued support as the LSU Department of Civil and Environmental Engineering continues to aspire to new levels of excellence.

Let me now write about the latest news of our Department. One of our past graduates was recently appointed as the Vice President of Design and Construction of Walmart Brazil. This is a tremendous achievement as detailed in this newsletter.

I would like also to congratulate our faculty members and students who won awards and presented papers. This shows the active and continued participation of the Department in these important and relevant activities.

I would like also to mention as outlined in this newsletter that the LSU College of Engineering has now become the home to a high tech driving simulator. Our faculty members' efforts were vital to securing this most important facility and are actively involved in bringing it to a full operational mode soon.

With deep sadness this issue brings the news of the passing of one of our professors. We mourn the loss of Dr. Roy Dokka who many of you remember as a faculty member and a distinguished colleague. May his soul rest in peace.

ASCE Student Chapter Updates

The LSU Student Chapter of ASCE kicked off the new academic year by attending the College of Engineering's summer camp for incoming freshman. A presentation on the benefits of joining ASCE was given to freshmen who were interested in civil engineering. Freshmen were also given the opportunity to tour the concrete canoe and steel bridge laboratory where they learned about the competitions that ASCE participates in each year.

ASCE has also been off to a busy start holding bi-weekly meetings featuring guest speakers such as Sigma Engineering, Terracon, and URS. The chapter also welcomed Blake Vutera as the new practitioner advisor. In late October, ASCE student chapter members volunteered at BREC's Haunted Hike, an opportunity to give back to the Baton Rouge community.

The Concrete Canoe team is currently working on fundraising and seeking sponsors for the upcoming regional competition. Co-captains Lesley Kates and Kristina Galindo lead the effort this year. The group's first meeting of the academic year focused primarily on welcoming new team members and brainstorming competition theme ideas. With plans to begin the mix design mid-semester, finishing by December at which

time they'll start planning construction, the group is off to a great start. The team created a Facebook group "2011-2012 LSU Concrete Canoe" to keep team members engaged and fans updated on the group's progress.

The Steel Bridge team, armed with several returning members, is also in full swing preparing for regionals. Captain David Ziegler will work closely with co-captain Morgan Hidalgo to lead this year's team to the regional competition at the University of Tennessee at Martin, with the end goal of proceeding to the Student Steel Bridge National Competition at Clemson University in May 2012. Last year's team placed 3rd overall at the regional competition at Mississippi State University and, armed with the experience of returning members coupled with the fresh enthusiasm of new members, the group is eager improve. Currently in the fundraising and design process, the group welcomes those who are interested in joining the team.

For more information about the LSU ASCE Student Chapter, visit their new website at <http://asce.lsu.edu>. Students are encouraged to join their Facebook group page (ASCE at LSU) to receive updates from the group, including information on upcoming meetings and events.

Student Competes in HEEP Educator Student Participation Program

Samuel B. Cooper, III, Ph.D. student in the Department of Civil and Environmental Engineering recently competed in the 2011 Educator and Student Participation for the Highway Engineering Exchange Program (HEEP). The HEEP Educator Student Participation program is designed to build closer ties with educators and students interested in the field of transportation engineering and gives students an opportunity to showcase their research efforts to members of the transportation engineering community. Mr. Cooper was selected as the Area II representative, which con-

sists of the southeastern portion of the United States (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia). The Area II HEEP office sponsored Mr. Cooper to compete at the International HEEP conference in Winnipeg, Manitoba. The competition was amongst the winners from the remaining four HEEP areas. Mr. Cooper received the second place award for presenting his research on Laboratory Performance of Asphalt Mixtures Containing Sustainable Materials.



Pictured Left are Dr. Ayman Okeil (Associate Professor, CEE), Dr. George Z. Voyiadjis (Chair, CEE) receiving a plaque from Harold "Skip" Paul (LTRC) on behalf of the civil engineering civil design class for their senior design project presentation. The project titled "Residential Subdivision Development in East Baton Rouge" placed 3rd, earning both a plaque of recognition and a \$5,000 check.

V. Johnson Trust Fund/Seattle Foundation, Verdi Adam & Ara Arman/GEC, Ann Trappey/Forte and Tablada, Larry McKee/PEC, Estate of Chester P. Siess, Recep Yilmaz/Fugro Consultants, Inc, ASCE Baton Rouge Chapter & Louisiana Section, Joseph Bruno, John E. & Nellie J. Bastien Memorial Foundation, PBS&J Foundation, Lloyd Guillory, Robert A. Deason, McDermott, Inc, Jack, Joseph and Dr. Thomas Carmena, A.K. Barton, Hays Owen/Baton Rouge Water Company, Wm. Clifford Smith, Fluor Enterprises, Wilfred Barry/SJB Group, Baton Rouge Area Foundation, Loyd Rockhold/Special Children's Foundation, Chenevert Architects, LLC, Metal Building Manufacturers' Association, Georgia-Pacific Corporation, State Farm, Alcoa Foundation, Coast Builders Coalition, Jeff Lahr, K.A.S. Construction, LLC, Innovative Technology Group, Inc, Eni Petroleum, Waskey Bridges, Inc, Robert E. Watson, Sr, Hollis B. Kazmann, Paige K, Moore, William M. Kazmann, Reena Kazmann, Caroline Kazmann, Worley Companies, Judith A. Siess, Boh Brothers Construction, James W. Bean, Structcon, Engensus, LLC, Mary Beth Chevalier, ACEC, Bill Edrington, Jr, American Institute of Steel Construction (AISC), ABMB Engineers, Inc,

URS, Marathon Oil, Shell, ConocoPhillips, BP America, Charles W. Hair, Jr, Penn Virginia Corporation, Don Melville, Anthony Salvaggio, Enrique Hartmann, Sr, Francis L. Clarke, Jr, Kristof D. Harris, Raymond E. Woodall, Samuel E. Stubbs, Carolyn J. Lahr Ott, Evelyn B. Christman, Dr. Kenneth L. McManis, Ed B. Picou, Jr, Leo M. LeBourgeois, Jr, Winston E. Kile, Zorraine > Waguespack, Property Loss Research Bureau, Shrenk & Peterson, Stewart Construction, LLC, Waldemar S. Nelson & Company, Dr. Brian Wolshon, and Dr. Chester G. Wilmot

The Department of Civil and Environmental Engineering would like to sincerely and whole-heartedly thank you for supporting this vital campaign. Throughout this initiative, alumni and friends became involved as never before. We hope these relationships will continue to develop for the benefit of present and future generations of civil and environmental engineers.

Much progress has been made, however much remains to be done to help elevate the CEE Department to top national ranking. We invite you to find your niche and get engaged in engineering the future!

Walmart Donates Funds for New Lab Equipment



Walmart recently donated \$117,500 for new equipment to be purchased for two labs in the Department of Civil and Environmental Engineering (CEE). For the Walmart Laboratory for the Study of Pollution Control, a gas chromatograph equipped with a purge-and-trap autosampler, along with a FID detector, will be purchased. And for the Sam's Club Laboratory for Environmental Sustainability, an accelerated solvent extraction system and a point of use water treatment laboratory will be added.

These two laboratories are used for instruction and research in the signature areas of environmental sustainability and pollution control. They offer opportunities for students to perform hands-on experiments as important part of their formal coursework, along with providing top-notch facilities for student and faculty research. In addition, the two laboratories were instrumental in rapid response research conducted by LSU engineering researchers during the Deep Horizon oil spill in 2010 and that research continues today. The acquisition of additional equipment will markedly aid the CEE departmental efforts to further enhance its national prominence in research and teaching capabilities in the area of environmental engineering.

GEC Donates Furniture for CEE Graduate Students

Gulf Engineers and Consultants, Inc. (GEC) recently made a donation of cubicle office modules to the Department of Civil and Environmental Engineering. These modules have been used to renovate office space for twenty-four CEE graduate students in the Engineering Lab Annex Building (ELAB).

"We at GEC have been witness to the excellent progress the Department of Civil and Environmental En-

gineering has made in recent years under difficult financial conditions. The Department has taken giant steps to enhance its national and international standing among major university programs and has become a well-recognized and respected academic and research center" said Ara Arman, Executive Vice President. "We are proud to be able to assist, in a small way, the Department's journey to higher levels of excellence" added Verdi Adam, President of GEC.



Campaign Wrap Up

Forever LSU Campaign: The Campaign for Louisiana State University was officially launched in June 2006, chaired by the Honorable Henson Moore III. It was the largest, most ambitious fundraising campaign in the school's history. The goal was to raise \$750 million by the University's Sesquicentennial. By December 2010, over \$798 million had been received or pledged by more than 61,000 donors for student and faculty support, facilities and equipment and a host of other priorities across campus.

The Department of Civil and Environmental Engineering (CEE) campaign was launched in November 2006 at the home of Wilfred & Shelley Barry. Attending the event were select alumni and friends of the Department, along with then Chancellor Sean O'Keefe. The CEE campaign target was set at \$4 million with a

stretch goal of \$8 million. With several thousand dollars donated that night, the campaign launched with a great start.

To guide the Department in its campaigning efforts, the CEE Campaign Steering Committee was formed. The committee, comprised of Ann Trappey, Ron Rodi, Wilfred Barry, Ronnie Hebert, Lloyd Guillory and Roger Melancon, was initially chaired by Larry McKee with leadership later transitioning to Ron Rodi. This group did an outstanding job of involving others and pursuing the Department's goals throughout the Campaign.

By the conclusion of the event, a total (unofficial) of \$3,506,527 had been given or pledged to CEE, with more in the works. Donations ranged from ten to almost four hundred thousand dollars, and every contribution was important in bringing us closer to our Campaign goal. Major gifts which significantly boosted our results included these areas:

- CSRS, Inc. Distinguished Professorship in Coastal Engineering
- Larry McKee Endowed Professorship
- Ann Forte Trappey Fund for Coastal Engineering
- Environmental Technical Services, Inc (ETEC) Lab for Hydrology and Water Distribution
- ETEC Scholarship in Civil Engineering
- Stanley M. and Hilma Cothren Undergraduate Scholarship
- Stanley M. and Hilma Cothren Graduate Fellowship for Engineering Excellence
- Joseph W. Carmena, Sr. Memorial Scholarship for undergraduates
- Walmart Laboratory for the Study of Pollution Control
- Sam's Club Lab for Environmental Sustainability
- John E. and Mary V. Johnson Materials Behavior Lab
- Chester P. Siess CEE Departmental Enrichment Endowment Fund
- Chester P. Siess Distinguished Professorship in Civil Engineering
- Lloyd J. Guillory Jr. Professorship in Civil and Environmental Engineering
- Mike Dooley, P.E. Professorship in Civil and Environmental Engineering
- McDermott Scholarship Fund
- Erin Krielow Lahr Memorial Scholarship
- Robert E. Watson, Jr. Memorial Scholarship
- ChevronTexaco Scholarship in Civil Engineering
- ExxonMobil Corporation Donation to the CEE Enrichment Fund
- Dr. Frank J. Germano Memorial Scholarship
- Baton Rouge Water Company Scholarship in Civil Engineering
- Dr. Ray Kazmann Memorial Scholarship and Kazmann Center for Graduate Studies Fund

Those making significant gifts and/or pledges during the campaign included: Walmart Corporation (facilitated by Patrick Hamilton), Bryan Bossier/Diamond B Construction, Ronnie Hebert/Environmental Technical Sales, Inc (ETEC), Mike

Pittman/M.R. Pittman Group, LLC, Stan and Hilma Cothren, Ron Rodi, Curtis Soderberg, Michael Songy and Christopher Pellegrin (CSRS), John Graves/Evans-Graves Engineers, Miles Williams/Sigma Consulting Group, ExxonMobil, Chevron, John E. & Mary

Thank You

Julius Codjoe Receives Cothren Fellowship



Julius Codjoe, PhD student in the Department of Civil and Environmental Engineering, was recently awarded the Stanley M. and Hilma R. Cothren Graduate Fellowship for Engineering Excellence. This fellowship was established to assist graduate students pursuing a PhD in civil engineering at Louisiana State University and is awarded to a U.S. citizen or permanent resident who has a cumulative grade point average of at least 3.5 for all college level work.

When asked about the motivation behind establishing this fellowship, Stan and Hilma Cothren (pictured right with grandson Carter and Dr. George Z. Voyiadjis, Chair of CEE) expressed their appreciation of the quality of life that they have enjoyed over the years. "We recognize that the key to our success has been higher education: specifically the value and benefits gained as a result of Stan's engineering education at LSU. Giving back to the education community, especially LSU, has been a joy." said Stan and Hilma.



Mr. Codjoe joined the PhD program in civil engineering in Spring 2011. He completed his bachelors in Agricultural Engineering from the Kwame Nkrumah University of Science and Technology in Ghana in 1999 and his MS degree in Civil Engineering from Linkopings University in Sweden in 2002. He thereafter worked with several transportation consultancies in the United Kingdom before joining the PhD program in civil engineering at LSU in Spring, 2011. His research interest lies in utilizing the recently acquired LSU driving simulator to investigate distraction levels affecting driver performance. Mr. Codjoe is serving as a research assistant for two projects: Establishing an Intelligent Transportation Systems (ITS) Lab at the Louisiana Transportation Research Center (LTRC); and Measuring Effectiveness of Ramp Metering Strategies on the I-12. Both projects are funded by the LTRC.



Civil Engineering Sophomore Wins Miss LSU-USA 2011 Crown

Christina "Fammy" Famularo, a sophomore in the Civil Engineering graduate program at LSU, won the Miss LSU-USA 2011 title. Famularo is a New Orleans native and one of the youngest Miss LSU winners.



Germano Center Outfitted With New Equipment

Check out the new computers in the Frank J. Germano Center. The new machines are 21.5" iMacs with Intel I5 quad processors. We also have a new overhead projector that can play High Definition (HD) video at maximum (1080p) resolution.

LWEA Bi-Annual Lake Cleanup Event

The LSU Student Chapter of the Louisiana Water and Environment Association (LWEA) held its bi-annual Campus Lake Cleanup Event on Saturday, September 24th, 2011. This year's event marked record participation, with over sixty-five attendees. Supervised by CEE Professor Dr. D. Dean Adrian and aided by canoes rented from the LSU UREC, large piles of trash were collected from the University Lakes area. Participants also enjoyed lunch prepared and served by a local chapter (8601) of the Knights of Columbus. The student chapter would like to thank all those who participated in this year's event.

For more information about joining the LSU chapter of the LWEA, contact Brooke Villarrubia bvilla2@tigers.lsu.edu.

Alumni Spotlight: Where are they now?

Terry Green (BCE 1964) is a Professional Engineer in the state of Louisiana and retired from the Department of Defense (civilian). Green recently received a BA in Film/Video (and a minor in acting) from Georgia State University. He now serves as President of Terry Green Inspections, which aims to use film/video for documentation of construction projects.

Congratulations

At the annual Past Presidents and Awards luncheon of the ASCE Baton Rouge Branch, held in June, two LSU civil engineering alumni received awards. Russell J. Joey Coco, Jr (BCE 2000) was presented with the Outstanding Civil Engineer award and Marty A. Chorkey (MCE 2010) with the Outreach award.

We appreciate updates from our treasured alumni. Send us your news and updates to jmueller@lsu.edu.

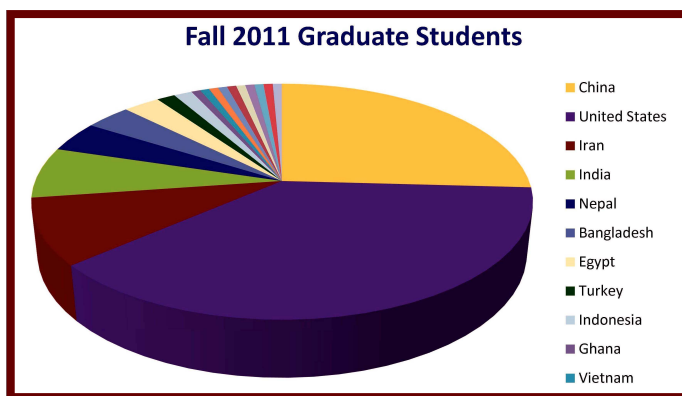
Patrick Hamilton, BCE 1984, Named VP of Design and Construction for Walmart Brazil

Patrick Hamilton, BCE 1984, was recently appointed to the position of Vice President of Design and Construction for Walmart Brazil. Mr. Hamilton is a 1984 graduate of the LSU Department of Civil and Environmental Engineering's Civil Engineering undergraduate program. After receiving his bachelor's degree, he served in the United States Navy, Civil Engineer Corps achieving the rank of Lieutenant Commander. Mr. Hamilton received his master's degree in Environmental Engineering from the University of Texas at Austin in 1992. After his Naval service, Mr. Hamilton joined the civilian workforce serving as Vice President of Engineering for Lord & Taylor Department Stores.



“My education and experience at LSU, gave me a solid foundation for my career in engineering and construction. My ‘Tiger Pride’ has given me a continued desire to work hard and be successful. Love Purple, Live Gold, Geaux Tigers!” – Patrick Hamilton

In 2002, Mr. Hamilton joined Walmart as the Director of Facilities Maintenance for Walmart U.S., later being appointed as the Vice President of Facilities Management. In 2006, he was promoted to Vice President, Construction for Walmart US. With this new appointment, Mr. Hamilton will be responsible for leading the design and construction program for Walmart Brazil.



The Department of Civil and Environmental Engineering recognizes the value that diversity brings to the educational experience of our students and also to the engineering profession as a whole. Our differences bring forth creativity and varied perspectives, creating a rich learning environment. The diversity of the students in our civil engineering graduate program serves as an excellent example.

LSU Mourns the Loss of Dr. Roy Dokka, Professor in CEE

The LSU community lost one of its most dedicated research and faculty members when Roy K. Dokka, Ph.D., passed away on Monday, August 1, 2011, at his residence in St. Francisville, La. He was 59 years old. Dokka is survived by his wife of 37 years, Margie Dokka, daughters Sandra Dokka Parfait and her husband Chris Parfait, and Kristina Dokka Knight and her husband William P. Knight II and son Trey.

Dr. Dokka was the executive director of the Center for Geoinformatics; director, Louisiana Spatial Reference Center; and holder of the Fruehan Family Professorship in engineering at LSU.

Professor Dokka joined LSU's Department of Geology & Geophysics in 1980 as an assistant professor after receiving his Ph.D. in Geological Sciences from the University of Southern California. He was promoted to full professor in 1990 and became the first recipient of the Adolphe G. Gueymard Professorship in Geology & Geophysics in 1998. In 2001, he became the first executive director for the Center for Geoinformatics. Dokka then joined the Department of Civil & Environmental Engineering and helped build new research and academic programs in Geodesy and Geoinformatics.

In 2002, he initiated the Louisiana Spatial Reference Center, a partnership with the National Geodetic Survey-NOAA, focused on creating a state-of-the-art positional infrastructure for the state. In 2003, he was selected as holder of the Fruehan Family Professorship in engineering. He had the unique distinction in that he was the only professor in LSU history to have been honored with endowed professorships from two different colleges (Basic Sciences and Engineering).

"Roy's 31 years of service to the University granted him a long familiarity with LSU and a deep commitment to the research interests in Geoinformatics," said College of Engineering Dean Rick Koubek. "Roy was a friend, mentor and inspiration to the many lives he touched at LSU and his passing leaves a great void in our College."

Born in 1951, Dokka received his bachelor's degree in 1973 from California State University, Northridge, and his master's degree from the University of Southern California in 1976. His research interests

centered on the application of the Global Positioning System (GPS) and geodetic leveling to study the massive subsidence that is affecting Louisiana's coast and midcontinent, and on understanding the role that tectonism and climate play in creating landscapes. Dokka's areas of specialization included earth systems science and engineering, and applications of the global positioning systems and geographical information systems.

In 1992-93, Dokka served as a program director at the National Science Foundation (NSF). He had been a member of several national policy committees for NSF and NASA dealing with Geology, Geographical Information Systems, and Geodesy. He also served as past-president of the South-Central Section of the Geological Society of America. Dokka was a Fellow of the Geological Society of America and was awarded a lifetime honorary membership in Alpha Lambda Delta, the National Freshman Honor Society for his record of outstanding teaching.

He received a Presidential Citation in 2003 for "outstanding service to the surveying profession in Louisiana" from the Louisiana Society of Professional Surveyors. He was also the 2008 recipient of the Commander's Medal for Excellence from the New Orleans District of the U.S. Army Corps of Engineers.

LSU honored Dokka as one of the 2008 and 2009 "Rainmakers," by the Office of Research and Development, recognizing 100 exceptional members of the LSU faculty for their pioneering research and innovative scholarship in earning the highest levels of outside funding and mentoring the finest graduate students. In 2009, he served as coordinator for the Geotechnical Group in the Department of Civil and Environmental Engineering.

His research activities were extensive and in 2010, he was appointed by Senator Mary L. Landrieu, D-La. as Member, United States Senate CODEL to the Netherlands: Coastal Flooding; and the State of Louisiana's Department of Natural Resources named him Member, Future Subsidence Taskforce.

Article by Mimi LaValle, LSU College of Engineering, 225-578-5706, mlavall@lsu.edu

Faculty Highlights



Dr. Chester G. Wilmot, Professor in Civil and Environmental Engineering at LSU, was recently awarded the "Outstanding Civil Engineering Educator Award" from the Baton Rouge branch of the American Society of Civil Engineers (ASCE). Dr. Wilmot received this award at the branch's annual Past Presidents and Awards luncheon in June.



In January of 2011, Dr. George Z. Voyiadjis was made "Life Member" of the American Society of Civil Engineers (ASCE). This status was bestowed upon Dr. Voyiadjis "with appreciation for a lifetime of dedication and service to the profession of civil engineering." Dr. Voyiadjis, Boyd Professor and Chair in the Department of Civil and Environmental Engineering, has been a member of ASCE since 1973. He has served as Associate Editor for the ASCE Journal of Engineering Mechanics from 2005 to present, as Associate Editor for the ASCE Journal of Aerospace Engineering from 2009 to present, and is the Founder and Editor of the ASCE Journal of Nanomechanics and Micro-mechanics.

Also, In January of 2012 Dr. Voyiadjis will be receiving the Khan International Medal for outstanding life-long Contribution to the field of Plasticity. He will be giving the plenary lecture and obtaining the award during the International Symposium on Plasticity 2012 and Its Current Applications that will be held in San Juan, Puerto Rico.



Dr. Guoping Zhang was one of the four recipients selected for the Chevron Innovative Research Support (CIRS) award from the LSU College of Engineering for his proposal entitled "Geopolymeric Fusion of Energy Wastes for Sustainable Energy, Environment, and Infrastructure".

The proposed research aims to synthesize and characterize a new type of waste-derived cementitious material—inorganic geopolymers, which are both energy and environment friendly, and further develop a viable material manufacturing technology that can potentially replace Portland cement production—an energy intensive process that also emits a greenhouse gas CO₂. The new technology will expectedly offer significant energy, carbon, and environmental benefits.



Dr. Michele Barbato, Assistant Professor, Department of Civil and Environmental Engineering, was awarded the 2011 European Association for Structural Dynamics (EASD) Junior Research Prize. Barbato was recognized "for his already achieved excellent scientific visibility in structural reliability and earthquake engineering."

"It is an honor to have received this prestigious international award. This award gives me great personal satisfaction, as it recognizes my dedicated work and continuous effort toward quality research, as well as the dedicated work and quality research of my colleagues and students," said Barbato. "It is a terrific incentive to intensify my efforts even more to contribute to engineering knowledge. I believe that this is also an important recognition of the excellent research that has been performed, and is currently being performed, in the Department of Civil and Environmental Engineering and in the College of Engineering at LSU."

The EASD Research Prizes are awarded once every three years to individual researchers in recognition of their outstanding and sustained contributions to Structural Dynamics in the following areas: (1) Development of Methodologies for Structural Dynamics, (2) Computational Structural Dynamics, and (3) Applications of Structural Dynamics. The prizes are awarded to researchers who are 40 years old or younger during the year the award is presented.

Professors G. Müller, executive vice-president of EASD and G.I. Schuëller, president of EASD presented the award to Dr. Barbato at the eighth International Conference on Structural Dynamics (EURODYN 2011) in Leuven, Belgium.



Dr. Louay Mohammad's, Professor in Civil and Environmental Engineering, paper titled "Estimating Optimum Compaction Level for Dense-Graded Hot-Mix Asphalt Mixtures" was selected as the Distinguished Research Paper in the Journal of Engineering Research for 2010-2011. Paper authors are Khalid Al Shamsi and Louay Mohammad.



LSU Coastal Engineers Measured Waves and Storm Surge on Marshlands in South Louisiana

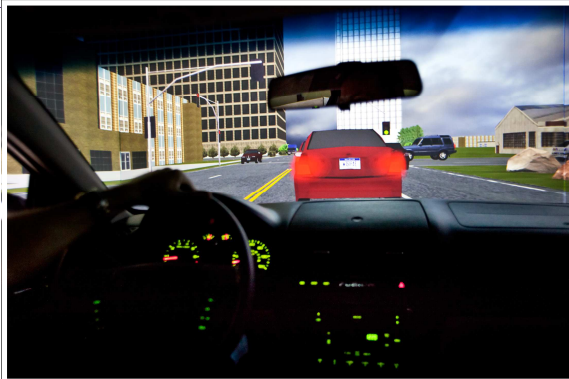
Prior to the landfall of Tropical Storm Lee in early September, LSU coastal engineering professor, Q. Jim Chen, and his graduate students, Ranjit Jadhav and Kyle Parker, deployed an array of eleven wave and surge sensors along a north-south transect on the marshland in upper Terrebonne Bay, LA. This is part of their field and modeling investigations of wave and surge attenuation by wetland vegetation. Although the value of wetlands in reducing the impact of hurricanes has been recognized, no systematic field observations exist to quantify the extent of flood risk reduction. Funded by the Department of

Homeland Security and the National Science Foundation, Chen's group in the Department of Civil and Environmental Engineering at LSU has developed the capability of rapidly deploying wave and surge sensors on marshlands in collaboration with T. B. Smith, LLC, a Louisiana engineering firm. A similar rapid deployment of wave and surge sensors prior to Tropical Storm Ida (2009) was carried out in Breton Sound, LA. The valuable datasets are aiding coastal engineers and scientists in developing and testing accurate computer models for predicting storm surge and wind waves over inundated coastal wetlands.

Pictured left: Ranjit Jadhav (left) and Kyle Parker (right), graduate students in the CEE department at LSU boarded the airboat before deploying wave and surge sensors on September 2, 2011 at LOMCON's marine in Cocodrie, LA. Pictured Middle and Right: Ranjit Jadhav (middle) and Kyle Parker (right) deployed storm surge sensors from the airboat. Pictured Right: (photos courtesy of Q. J. Chen)



LSU College of Engineering Home to High-Tech Driving Simulator



According to the Center for Disease Control and Prevention, or CDC, more than 30,000 people are killed in motor vehicle crashes each year in the United States. In 2005, this resulted in a cost of \$41 billion to the country, and \$969 million to Louisiana alone, in addition to the psychological impact on the passengers, friends and families of victims (<http://www.cdc.gov/Motorvehiclesafety/statecosts/la.html>). Highway safety statistics such as these draw attention to the dire need for research in this increasingly important field, and LSU is aimed at being a key player in the fight to make the nation's roadways a safer place to drive.

LSU's College of Engineering has a new and exciting acquisition that will spur cross-campus research and could potentially draw in big dollar federal grants – a virtual driving simulator developed by Realtime Technologies Inc. The simulator will provide undergraduate and graduate students from a variety of disciplines the opportunity participate in studies that could impact driving safety.

The simulator features a full-body Ford Focus (minus the wheels) and technologically-advanced computer

programming that provides a realistic virtual environment by combining a series of cameras, projectors and screens, bringing the total driving experience indoors.

Associate Professors of Civil & Environmental Engineering Sherif Ishak and Brian Wolshon, together with Associate Director of Research for LSU's Gulf Coast Center for Evacuation and Transportation Resiliency Vinayak Dixit, worked to bring this innovative equipment to campus. The software behind the simulator is quite complex and will take some time and significant programming before it is fully operational, but that presents the opportunity to involve graduate students or faculty from computer science and similar programs.

"Once the installation is complete, we will be able to test for many things," said Ishak. "Texting, road conditions, the impact of medication on driver awareness – the possibilities are endless."

The program works by allowing humans to interact with the simulator, providing a complete and realistic simulation framework. This provides researchers the



“Simulators are a field of increasing research, and LSU is ready to enter into this new, interdisciplinary technology.”

- Dr. Sherif Ishak

ability to piece together a simulated driving environment tailored to the research being conducted. Once the simulated environment is in place, the researchers will then be able to employ a human subject to carry out the established task(s) and to analyze the results.

“Four digital cameras that feed into the SimObserver software have recently been installed, allowing us to capture video from four different angles inside the vehicle and observe the driver’s behavior more accurately,” said Ishak. “Additional data can also be captured for every single frame on top of the video stream such as the vehicle coordinates, speed, acceleration, etc.”

Already, researchers can select from a variety of weather conditions, road surfaces, driving environments and other options. From then on, the driver is immersed in a world of the researcher’s choosing – anything from a rainy, busy interstate to a sunny day in the big city.

Everything about the process is like driving a real car – participants have to put the car in gear, use their mirrors and react to the flow of traffic. Step on the gas, and the driver sinks into the seat; step on the brakes, and the driver rolls forward. It’s quite realistic – so much so, in fact, that participants react almost the same way as they would when driving their own vehicles, carefully using their mirrors and checking both ways before merging into traffic. One side effect of this virtual reality program, though, is motion sickness – which is reported to be sometimes quite intense.

“It definitely takes some getting used to,” said Ishak. “Because of the different levels of visual stimulation and simulated movement, vertigo and nausea are commonplace after the first ‘drive,’ which is why participants in future studies will have to operate the equipment multiple times before we can register their results.”

Some potential areas of research include:

- Study of human factors in driving tasks;
- Study of driving performance for different groups and under different environmental conditions;
- Design or assessment of new in-vehicle gadgets, including text messaging equipment;
- Training of drivers;
- Improvement of highway design standards;
- Impact of prescription drugs on driver safety;

While new, the college’s simulator brings LSU into the quickly developing world of simulation research. Supported by the Louisiana Department of Transportation and the Louisiana Board of Regents, it promises to be a great addition to LSU’s arsenal of research applications.

“This is a very interesting research area that we haven’t had the chance to work with before,” said Ishak. “We are focused mostly on safety and the human behavior that impacts safety in driving. Simulators are a field of increasing research, and LSU is ready to enter into this new, interdisciplinary technology.”

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