

FROM THE DEPARTMENT CHAIR

A letter from George Z. Voyiadjis

Speaking of awards, we have a couple of accolades bestowed upon members of our faculty as well. Assistant Professor Aly-moussad Aly was awarded the LSU Alumni Association Rising Faculty Research Award, while Associate Professor Michele Barbato received the LSU College of Engineering Award for Instructor Excellence.

Our very own Center For Geoinformatics (C4G) recently acquired new geodetic instruments that can model the Earth's gravity field as a result of an enhancement grant sponsored by the Louisiana Board of Regents. The high resolution images that these instruments will provide will increase our understanding of subsidence rates in various locations, especially in coastal southern Louisiana.

This past May, I had the esteemed privilege of being honored by the Poznan University of Technology in Poznan, Poland, with the degree of doctor honoris causa (Latin for doctor of merit). The degree is conferred by the academic community of the university as a special tribute to those that have contributed not only to their respective fields, but to the university as well.

Sincerely,
Dr. George Z. Voyiadjis
*Boyd Professor, Chair
Bingham C. Stewart
Distinguished Professor*



I am pleased to announce two new inductees into the LSU Department of Civil and Environmental Engineering (CEE) Hall of Distinction: David P. Sauls and Miles B. Williams. Mr. Sauls now serves as chairman of the board at GeoEngineers Inc. and Mr. Williams serves as president of Sigma Consulting Group. Mr. Sauls earned his Bachelor's degree in Civil Engineering at LSU in 1982. Mr. Williams received his Bachelor's in 1983 and has since grown in experience and technical knowledge, providing his expertise towards teaching a senior level civil engineering project course for the past eight years. Both of our 2017 inductees, recognized at our annual banquet, are great examples of engineering excellence.

This year, the LSU student chapter of the American Society of Civil Engineers (ASCE) competed at the Deep South Regional Conference held at the University of Memphis in Tennessee. The Steel Bridge and Concrete Canoe teams represented our department with fervor and were helmed by strong leadership from both teams. Individual members from both teams secured top three awards in multiple events. Well done!

ALUMNI REGISTRATION & UPDATES

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

Department of Civil and Environmental Engineering
Louisiana State University
3325 Patrick Taylor Hall
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.

Thanks for staying in touch!

To connect with the LSU College of Engineering, please visit www.eng.lsu.edu/alumni/update.

IN THIS ISSUE





LSU ASCE COMPETES AT DEEP SOUTH REGIONAL CONFERENCE

American Society of Civil Engineers (ASCE) at LSU participated in the 2017 Deep South Conference at the University of Memphis this past March. Our competing teams were Steel Bridge and Concrete Canoe, and both worked diligently to completed the respective designs. With the goal of getting more of our ASCE members involved, Josh Olivier and Gabrielle Dubroc (Steel Bridge captain and co-captain, respectively) as well as Daniel Gutierrez and Amanda Jackson (Concrete Canoe captain



and co-captain, respectively), made a great effort to guarantee that each participant played an active role in the design and construction processes. For many of our members, it was the first time being involved on either team. As expected, this turned out to be a wonderful team building and learning experience.



Concrete Canoe members Vincent Orlando and Mason Bonano placed third in the Men's Sprint, and Amanda Jackson and Gabrielle Dubroc placed third in Women's Endurance. Team members Jack Cadigan, Josh Olivier, and Ronald Smith placed second in the Water Filtration event. In the Mystery Event, team members Mason Bonano, Kimmy Phan, Vincent Orlando, and Manuel Calderon placed third. Of course, we are very proud of our Tigers for both the effort and the outcomes of this year's Deep South Conference; as always we look forward to building an even stronger team next year.



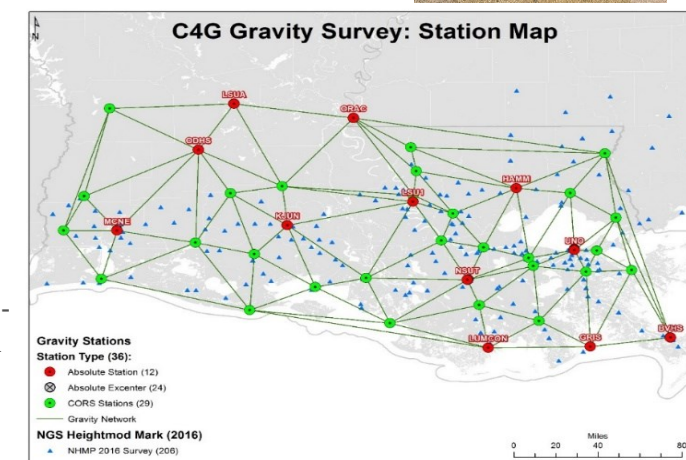
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THE CENTER FOR GEOINFORMATICS JUST ACQUIRED GEODETIC INSTRUMENTS TO BETTER UNDERSTAND SUBSIDENCE RATES IN LOUISIANA



The Center for GeoInformatics (C4G) in the Department of Civil and Environmental Engineering (CEE) recently received new geodetic instruments to model the Earth's gravity field. A Scintrex CG-5 Relative Gravity Meter, Leica T60 Total Station, and Trimble R10 GPS Rover Kit were acquired as part of an enhancement grant sponsored by the Louisiana Board of Regents. CEE Chair, George Voyiadjis (PI) and C4G Manager Joshua Kent (co-PI) led the collaborate project that included investigators from CEE, Environmental Sciences, Geology, Geography, and Oceanography. The instruments were acquired to address three long-term objectives: develop a novel, high-resolution gravity model of sea level (i.e., geoid); augment knowledge the mechanisms driving subsidence rates; and promote advanced geodetic research in the college and at the university.



Gravity station map of south Louisiana illustrating the locations of absolute gravity stations (red circles), CORS sites (green circles), and latest height modernization reference marks (blue triangles).

In Louisiana, as in many river deltas around the world, land surfaces are sinking due to subsidence. On average, southern Louisiana experiences nearly 10 millimeters of subsidence per year. A better understanding of the processes affecting vertical change is essential for mitigating risk and promoting coastal sustainability. The CG-5 gravity meter supports these efforts by measuring the relative variations in the Earth's gravity field, which provide unique insights into the differential rates of compaction and consolidation that operate across the coastal zone. The T60 total station and R10 rover kit provide measurements that establish a critical link between these current gravity measurements and older observations made in the early 2000s by the National Geospatial-Intelligence Agency and the National Geodetic Survey. The instruments acquired by this grant will furnish C4G researchers with much needed insight into the geophysical processes driving subsidence... information that has long been inaccessible until now.

In addition to the subsidence research, these enhancements will directly and indirectly benefit Louisiana's geodetic stakeholder and consumer communities. For nearly a decade, the C4G has provided tools, services, and other geodetic resources dedicated to precise positioning throughout the state and across the region. Central to these resources is the C4GNet real-time reference network. The network includes more than 50 continuously operating GPS reference stations (CORS) installed across Louisiana. Over the next five years, the C4G will geodetically correlate gravity measurements with GPS antenna heights at each station. Extended surveys will include CORS in neighboring states. When completed, the measurement data will contribute to the creation of a novel, high-resolution geoid model that will allow Louisiana's geodetic communities to accurately and precisely measure elevations above sea level.

Overall, the instruments acquired by this grant represent an investment into the geodetic research capacity of the C4G and CEE. In addition to the above goals and objectives, the instruments have been requested for use in two external funding proposals, both of which propose to leverage the precision of these instruments to deliver meaningful geodetic solutions. These instruments not only promote research activities, they have galvanized national and international collaborations with partners across the US Gulf Coast, the nation, and western Europe. Additional information about these instruments and geodetic resources provided by the C4G is available at www.c4g.lsu.edu.

BOYD PROFESSOR VOYIADJIS RECEIVES THE DEGREE OF DOCTOR HONORIS CAUSA FROM POZNAN UNIVERSITY OF TECHNOLOGY, POZNAN, POLAND.



LSU Civil & Environmental Engineer Chair and Boyd Professor George Z. Voyiadjis received the honorary degree from Rektor Tomasz Lodygowski (left). The honorary degree in both Polish and Latin (right). The monograph for the honorary degree by Voyiadjis, G. Z., *Doktor Honoris Causa Politechniki Poznańskiej: Constitutive Modeling and Simulation of Materials/Structures under Extreme Loadings due to Impact Loading at High Strain Rates*, 171 p., COMPRINT, Poznan, Poland, ISBN 978-83-7775-458-0, 2017.

The term “degree of doctor honoris causa” originates from Latin and means “doctor of merit” translating literally to “doctor for the sake of honor.” In academic tradition, the degree of doctor honoris causa is the highest dignity and the greatest honor that can be conferred by a university on persons who particularly contributed to science and the university. Recently, LSU Civil and Environmental Engineering Chair George Z. Voyiadjis received this honor from Poznan University of Technology in Poznan, Polan. Professor Tomasz Lodygowski, Rector of Poznan University of Technology has this to say about the conferred honor.

“In almost 100 years of the history the Poznan University of Technology, the degree of doctor honoris causa has been conferred on only 37 people. The academic community of our university sought to pay tribute in this special and unique way to people of outstanding merit, who distinguished themselves in science, cultural activity, or social life. Each recipient of this prestigious title was also in a particular way associated with our University. It is no different this time, when we accept Professor George Z. Voyiadjis to the group of doctors honoris causa of Poznan University of Technology. Professor George Z. Voyiadjis is an outstanding scientist, full of passion and devotion, excellent organizer of academic and scientific life, who devotes much of his time to working with young people. Professor George Z. Voyiadjis’ impressive scientific, didactic, and publishing accomplishments are of fundamental importance for the development in the field of science that is the solid of mechanics. The Senate of Poznan University of Technology has decided to award Professor George Z. Voyiadjis the degree of doctor honoris causa upon request of The Board of the Faculty of Civil & Environmental Engineering. This initiative obtained unequivocal support of the Senate of the Gdańsk University of Technology and the Senate of the Silesian University of Technology, as well as the Scientific Council of the Institute of Fundamental Technological Research of the Polish Academy of Sciences. Undeniably, the fact of honoring Professor George Z. Voyiadjis with the degree of honoris causa of Poznan University of Technology distinguishes us and ennobles our university.”

INSTITUTE OF TRANSPORT ENGINEERS



The ITE-LSU student chapter represented LSU at the Deep South Institute of Transportation Engineers (ITE), and Ms. Nelida Herrera (graduate student).

GEAUX ENGINEERING



CE4460 VISITS PRECAST CONCRETE PRODUCTION SITE

Students enrolled in the capstone project Class, Design of Bridges - CE4460, visited a prestressed concrete production plant in March with Professor Ayman Okeil who teaches the course. The visit was arranged by Paul Fossier, Louisiana state bridge engineer, who also guest lectures the course. Dustin Gaspard, of Boykin Brothers Inc. in Baton Rouge, toured the plant with the students and showed them the main production steps of precast prestressed concrete structural elements (form preparation, stressing of strands, concrete production and placement). This year’s group of students was lucky to also see the construction of a new production line for the new LG girders. Sam Greenwood talked to the students about the anchor ends that were designed to hold prestressing forces expected for these girders, which can reach 4 million pounds. The students enjoyed the trip and valued the opportunity to be aware of the real world side of their future jobs. Something that is not easy to bring into the classroom.



CHI EPSILON

The LSU chapter of Chi Epsilon, a national civil engineering honors society.



EVEG SENIOR DESIGN TEAM AT WEAT



The Environmental Engineering senior design team of Mary Beth Dixon, Darrian Ellison, Dustin Haffner, Pierce Powers, and Lisa Weaver placed third (and snagged a \$400 prize in the Water Environment Association of Texas (WEAT) student design competition that was recently. They designed a wastewater treatment plant upgrade to treat an expanded volumetric flow rate and meet more stringent effluent requirements as their senior design project.

CEE GRADUATE STUDENT RESEARCH CONFERENCE

In March 2017, the Department of Civil and Environmental Engineering (CEE) held the sixth annual CEE Graduate Student Research Conference to showcase the research work conducted by its graduate students. Held in Patrick F. Taylor Hall, 37 participants displayed research posters to conference guests and judges. Judging for the conference was conducted by a panel of 15 individuals from each research concentration area. Each entry was reviewed for technical content, delivery of the poster presentation, design, and clarity. Results were tallied, and the following winners were announced:



Aref Samadi-Dooki (Tied for First Place: \$600)
Viscoelastic Characterization of the Brain Tissue Using Monotonic and Cyclic Indirect Indentation.
 Advisor: Professor George Z. Voyiadjis



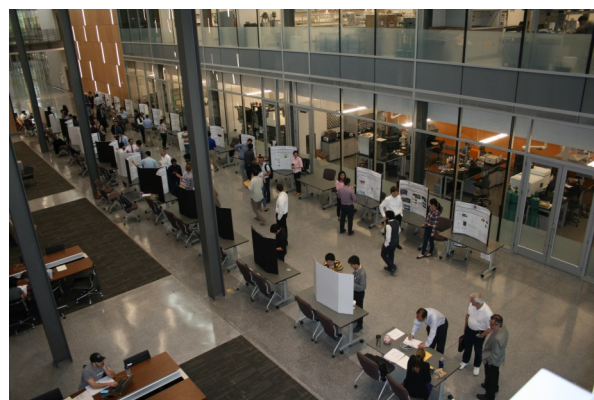
Henok Demissie (Tied First Place : \$600)
A Mathematical Formulation for Computation of Hydroperiod.
 Advisor: Professor Scott Hagen



Sogand Karbalaieali (Second Place: \$300)
Development of a Dynamic Cooperative Merging Control Algorithm for Connected/Automated Vehicle Environments.
 Advisors: Professor Sherif Ishak

- Honorable Mention**
- Saleh Mousa (Transportation)
 - Shima Shamkhali Chenar (Water/Coastal)
 - Charles Davis Lofton (Environmental)
 - Chang Huang (Geotech)
 - Yang Yu (Structures/Mechanics)

CEE Graduate Advisor and Professor Ayman Okeil would like to thank all conference participants and visitors for making this year another success.



generously given to the Department of Civil Engineering to help fund laboratory equipment. In addition, they have funded scholarships through the LSU School of Music and have helped fund capital improvement projects through the Tiger Athletic Foundation.

Williams has worked to advance the engineering profession while protecting the public by serving on the Louisiana Professional Engineering and Land Surveying Board (LAPELS) for a six year term from 2008 to 2014, serving as chairman in his last year.

In addition, he has been active in the Louisiana Engineering Society (LES), serving on the Baton Rouge Chapter's Board of Directors including as president in 2004. He currently serves as the statewide legislative liaison for the LES State board. Other professional and technical organizations that he is involved with include the National Society of Professional Engineers, the American Society of Civil Engineers and the Institute of Transportation Engineers.

Williams currently sits on the executive committee of the Manship YMCA's Board of Directors where he serves as the capital campaign chairman. He also has served as vice president of the St. Jude the Apostle School Board and was a long-time Cub Scout leader. He and his wife Martha reside in Baton Rouge and have three children the youngest of which is a junior at LSU.



For a complete list and profiles of all members of the CEE Hall of Distinction, please visit www.lsu.edu/cee/alumni/hall-of-distinction.php



Assistant Professor Aly-mousaad Aly was awarded the LSU Alumni Association Rising Faculty Award.



Associate Professor Michele Barbato has received the 2017 LSU College of Engineering Award for Instructor Excellence (Longwell Award) in recognition of his contribution towards shaping the early years of students.



(continued from page 7) including (formerly ASFE): The Geoprofessional Business Association (GBA). In fact, his involvement with GBA, as well as his professional reputa-

tion earned him the honor of being the invited lecturer for the 42nd Martin S. Kapp Memorial Lecture at the American Society of Civil Engineers, Metropolitan Section, New York, New York in February 2017.

David's education and long career have led him to be the geotechnical engineer of record for hundreds of construction projects for roads, bridges, railroads, industrial plants, commercial buildings, levees, offshore and near-shore platforms and docks, and trenchless construction of pipelines. He is an accepted geotechnical expert in Louisiana, Mississippi and Texas state courts as well as Federal courts.

He has conducted geotechnical analyses for predicting settlements of shallow and deep foundation systems, computed axial and lateral pile capacity of foundation soils, evaluated the stability of earth slopes, computed lateral earth pressures for permanent and temporary retaining structures and waterfront bulkheads, identified constructability issues, developed performance monitoring programs, and interpreted performance results of real-time field monitoring data acquisition.



Miles B. Williams, PE
President and Co-Owner
Sigma Consulting Group Inc.

Miles B. Williams is a 1983 graduate of Louisiana State University with a Bachelor of Science in Civil Engineering. He has committed substantial time and resources toward promoting the education of young engineers by assisting LSU's Department of Civil & Environmental Engineering. He has served as an adjunct faculty member, teaching CE4750 – Professional Issues and Introduction to Concept Design, a senior-level civil engineering project course, for the past eight years. In addition, he served four years on the Civil Engineering Program Advisory Committee with two years as chairman. He is a past member of the Scotlandville High School for Engineering Professions Advisory Council.

Williams is a registered professional engineer in Louisiana, Florida, and Texas. He has more than 33 years of technical and management experience with an emphasis on a wide range of transportation- and infrastructure-related projects. In that time he has performed project management, design and plan preparation oversight, client liaison, project estimating and budgeting, and contract negotiations and administration.

He has worked with his partners over the past 27 years to build Sigma Consulting Group Inc. into a successful regional engineering and land surveying company headquartered in Baton Rouge with a satellite office in Pensacola, Florida. Williams is currently president of Sigma, a position he has held for the past 13 years. He is responsible for management of the day-to-day operations of the firm while providing the vision and direction necessary for the continued success of the company. Sigma has been named one of the "Best Places to Work" in Baton Rouge by the *Baton Rouge Business Report* for all three years that the event has been organized. In addition, Sigma has been in the LSU 100, a list of the top 100 Tiger-owned or Tiger-led companies three times in the last five years.

Williams and his wife, Martha, have endowed the Mike N. Dooley Professorship in Civil Engineering and have

HURRICANE FLOW GENERATION FOR TESTING ENERGY AND COASTAL INFRASTRUCTURE

Department of Civil & Environmental Engineering Assistant Professor Aly-Mousaad Aly (Primary Investigator) and George Z. Voyiadjis (Co-Primary Investigator) led the collaborative project that included investigators from Civil and Environmental Engineering, Mechanical and Industrial Engineering, Coast & Environment, Louisiana Sea Grant, Geography & Anthropology, Construction Management, and Sociology. The project, *Hurricane Flow Generation at High Reynolds Number for Testing Energy and Coastal Infrastructure* that was awarded by the Louisiana Board of Regents to build Phase 1 of a large wind and rain testing facility. This facility will strengthen the research capabilities of the Windstorm Impact, Science & Engineering (WISE) Research Program at LSU, and enable researchers from LSU and around the world to test their research ideas, expand knowledge leading to innovations and discovery in science, hurricane engineering, and materials and structures disciplines, to build more resilient and sustainable infrastructure.

It will also enable scientists and researchers to test potential mitigation and restoration solutions, both natural (e.g., vegetation) and artificial. Potential applications include, but are not limited to, wind turbines, solar panels, residential homes, large roofs, high-rise buildings, transportation infrastructure, power transmission lines, etc. The research activities will provide knowledge useful for homeowners, local governments, and insurance companies to deal more effectively with storms, for example, it will assist officials and decision makers to fine-tune design codes, and give coastal residents options for making their dwellings more storm resistant. The goal is to build new structures and retrofit existing ones in innovative ways to balance resilience with sustainability, to better protect people, and reduce loss of life and the huge cost of rebuilding after storms. This will broadly impact the wind/structural engineering research field, and facilitate effective investments in the infrastructure industry that result in more resilient and sustainable communities and contribute to economic growth, and improve the quality of life.



LSU large-scale windstorm testing facility and long-term economic development goals.



CEE INDUCTS NEW MEMBERS INTO HALL OF DISTINCTION

In May 2016, the Department of Civil and Environmental Engineering (CEE) held its annual Hall of Distinction Banquet at the Lod Cook Alumni Center to honor its latest inductees: Akram N. Alshawabkeh, Professor of Civil and Environmental Engineering at Northeastern University, and Janice P. Williams, chief engineer of the Louisiana Department of Transportation. In addition to the inductees and their guests, in attendance were current CEE Hall of Distinction members, members of the CEE External Advisory Board, CEE faculty and staff, and students.

Including the two recent inductees, the CEE Hall of Distinction now includes 29 members. Initiated in 2001, CEE created the Hall of Distinction to recognize individuals who have made stalwart contributions to the profession. Candidates are carefully selected based on distinguished professional achievement and service to civil and environmental engineering. Inductees have made substantial impact in their field and to the CEE department. In honoring these individuals, the

department intends recognize all those who have contributed to engineering excellence.

For the second year, the CEE department also recognized several outstanding students. Civil engineering undergraduates Jacob Watts and Elizabeth Hutchinson received Academic Achievement Awards. Environmental engineering undergraduates Aaron Bennett and Kevin Brown received Academic Achievement Awards as well. Md. Naiful Haque, a civil engineering doctoral student, was selected as Graduate Student of the Year.

Also recognized were recipients of the 2016 faculty and staff awards. Zhi-Qiang Deng, professor in water resources engineering, was recognized with a Research Achievement Award (pictured bottom left). Frank Tsai, also a water resources engineering professor was recognized with an Educational Achievement Award (pictured middle). Ayman Okeil, professor in structural engineering, was recognized with the Departmental Service Award (pictured bottom right).



2017 INDUCTEES

David P. Sauls, PE



**Principal, Chairman of the Board
GeoEngineers Inc.**

David Sauls has more than 30 years of experience as a geotechnical engineer and he has served as the chairman of the board at GeoEngineers Inc. since 2011.

Since first earning his bachelor's degree in civil engineering from LSU in 1982, Sauls has been fortunate to have spent a career helping two types of clients: those he can guide in advance to avoid soil problems and those that are in distress and need to be rescued.

He works from the Baton Rouge location of GeoEngineers, and his geotechnical-based engineering knowledge covers design analysis, soil mechanics, laboratory testing, field exploration, and project management with a strong focus on performance of soft soil at sites ranging from the Mississippi River; the Beaufort Sea; Wynyard, Saskatchewan; and the Orinoco River Basin in Venezuela.

GeoEngineers' Baton Rouge office was previously Louis J. Capozzoli & Associates Inc. from 1965 to 2007. Sauls began his engineering career by landing a summer job in 1977 working for Louis J. Capozzoli, founder of the prominent Baton Rouge geotechnical engineering firm bearing his name. He continued working for Capozzoli as an undergraduate at LSU. After seeing firsthand the construction challenges of soft Gulf Coast soils, he moved to Cambridge, Massachusetts to earn his master's degree in civil engineering at the Massachusetts Institute of Technology (MIT).

After working with legendary McClelland Engineers in Houston for 10 years, Sauls returned in 1994 to his roots in Baton Rouge to rejoin the Capozzoli firm as a principal. The firm eventually merged with GeoEngineers in 2007. He is a registered professional engineer in 15 states, and he is an active member of numerous organizations, (continued on page 8)

CEE HALL OF DISTINCTION

2001 Charter Members Ara Arman Elvin Dantin, PhD* L. Lane Grigsby Chester P. Siess, PhD* Bingham C. Stewart*	2009 John A. Graves Mehmet T. Tümay, PhD
2002 Verdi Adam Dipak Roy, PhD* Wm. Clifford Smith	2010 Shahram Sarkani, PhD Sherri Hammond LeBas
2003 James M. Coleman, PhD Ann Forte Trappey	2011 Song-Kai Yan, PhD* Rodolfo J. Aguilar, PhD
2004 George Munfakh, PhD Kam K. Movassaghi, PhD	2012 Lloyd Guillory Taehyo Park, PhD
2005 Dr. Kenneth L. McManis Larry A. McKee	2013 Paul Fossier, Jr. Anand Puppala, PhD
2006 John "Jack" Donahue, Jr. Ronald "Ron" Rodi	2014 William E. Rushing, Jr. Dr. Pradeep Kurup
2007 J. Tinsley Oden, PhD Recep Yilmaz	2015 Ronnie Hebert Michael Songy
2008 Robert A. "Bob" Deason Frank J. Germano*	2016 Akram N. , PhD Alshawabkeh Janice P. Williams
	2017 David P. Sauls Miles B. Williams

* Deceased