

Concrete Issues

Department of Civil Engineering
Herff College of Engineering



› Chairman's Message ‹

Dear Alumni, Friends, and Colleagues,

As we begin a new year, I am pleased to share with you some of the many accomplishments and developments within our department since our last Concrete Issues. We began the 2014–2015 academic year with a 16% increase in our first-time freshman enrollment. We started this year as well with nearly 40 Ph.D. and M.S. students, our largest enrollment ever. Our success is a reflection of the outstanding research and scholarship productivity of our faculty, research staff, graduate students, and post-doctoral fellows.

Our faculty have been very successful in obtaining research funding and are committed to funding graduate students. Sponsored research expenditures are at their highest level in the last 10 years. Currently, the Department of Civil Engineering has more than half of the entire Herff College of Engineering sponsored research expenditures. The quality of our graduate program continues to be outstanding.

Our main foci have been to grow our undergraduate enrollment by recruiting top high school students, and to have an impact on our region, state, and nation. We are committed to excellence. To achieve excellence, we have expanded our program with the appointment of three new highly qualified faculty members: Dr. Adel Abdelnaby joined us in the Fall of 2012 from the University of Illinois at Urbana-Champaign, Dr. Ricardo Taborda joined us in the Fall of 2013 from Carnegie Mellon where he was a post-doc fellow, and Dr. Sabya Mishra joined us in the Spring 2013 from the University of Maryland where he was a research assistant professor. In this edition of Concrete Issues, please read about their expertise, research interests, and activities.

This year we are celebrating the 50th anniversary of the Herff College of Engineering. I hope that your financial support will continue to have a significant impact in enhancing our program in coming years. Please keep in touch; come visit us if you are in the area; e-mail us to keep us updated on your activities; and follow us on social media.

Dr. Sharam Pezeshk

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› Faculty Update ‹



Ms. Racheal Hall
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Welcome to Our New Administrative Associate

I transferred to Civil Engineering from the Office of Financial Aid where I was the Assistant Director of Data Management. The academics of education has always fascinated me and I wanted to learn and gain knowledge in this area. I have a Bachelors of Business Administration with an emphasis in Management Information Systems from the University of Central Arkansas. I have over 30 years work experience in customer service, office

administration, data management, system testing, systems analysis, programming, report writing and supervisory skills. I have coached boys and girls basketball in the past and my favorite time was coaching my daughter while playing AAU basketball. My hobbies are family, boating, fishing, camping, travel, and watching sports: basketball and football (especially the Memphis TIGERS and Arkansas RAZORBACKS).

Racheal serves on the University Staff Senate, the University Public Records and Forms Committee, and the University Legislative Committee.



Dr. Adel Abdelnaby

On June 26, 2014, Dr. Adel Abdelnaby was invited by the director of the Multi-hazard Approach Engineering (MAE) Center director, Dr. Paolo Gardoni, to be a guest speaker to present his recent article on

“The Integrity Assessment of the Pharos on Alexandria During the 1303 AD Earthquake.” The conference was held at the Millennium Knickerbocker Hotel in Chicago, IL. Dr. Abdelnaby was awarded the Engaged Learning Fellowship. The funding from this fellowship will be used to redesign his undergraduate steel design class to a practice-oriented course with the objective of developing strong ties between the University of Memphis students and local structural engineering consultants in the Memphis area. The interactions between local engineering professionals and our students is considered a win/win situation for both the University of Memphis and the community.

› Welcome to Our
New Faculty ‹

Dr. Adel Abdelnaby



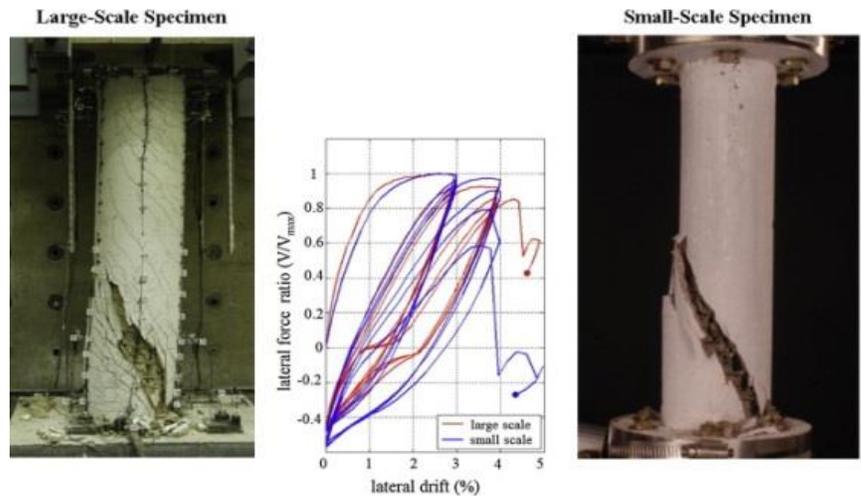
Dr. Ricardo Taborda



Dr. Sabya Mishra

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Dr. Abdelnaby was invited by the American Institute of Steel Construction (AISC) to participate in the AISC Educator Workshop to share his experience in teaching undergraduate and graduate classes on steel behavior and design. The workshop was held in Chicago on July 30-31, 2014. Dr. Abdelnaby published a new paper on “Numerical and Hybrid Analysis of a Curved Bridge and Methods of Numerical Model Calibration.” The experimental test that was conducted in this paper is unique since it accounted for three-dimensional system-level interaction between three experimental piers in two testing facilities with the numerical models of the deck, restraints and abutments.



Dr. David Arellano is the principal investigator (PI) for the Lochnevin Dam project, which involves assisting the Scenic Hills Neighborhood Association, the owners of the dam, to perform a condition survey of existing dam conditions and to prepare a maintenance and operation manual as well as an emergency action plan for the dam. Dr. Arellano is Co-PI with Dr. Chris Cramer of CERl for a U.S. Geological Survey project that involves improving and updating liquefaction probability curves for use in the updated Urban Seismic Hazard Maps for Memphis and Shelby County, Tennessee. Dr. Arellano is also Co-PI with Dr. Steven Bartlett of the University of Utah on a project that involves evaluating the use of geofoam for support of freight rail

track embankments and performing field instrumentation of the existing Utah Transit Authority's Front Runner South commuter rail line that extends from Salt Lake City to Provo, Utah. This project is funded by the University of Memphis's Intermodal Freight Transportation Institute. Dr.

Arellano was invited to give presentations related to geofoam and slope stability at the XI Seminario Internacional de EPS in Budapest, Hungary; at the Ministerio de Transporte y Obras Públicas in Quito, Ecuador; at the Kurtz Ersa 3rd Educational Seminar for the Americas in Cancún, Mexico; at the EPS EXPO 2014 in San Antonio, TX; at the Secretaria de Comunicaciones y Transportes (SCT) and Caminos y Puentes Federales de Ingresos



Dr. Arellano with graduate researcher Ramesh Neupane and Dr. Steve Bartlett performing field work in Salt Lake City, Utah.



Undergraduate researchers Dustin Williams and Joseph Smith surveying Lochnevin Dam lake bottom.

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y Servicios Conexos (CAPUFE) in Mexico City and Tijuana, Mexico; at the Universidad Nacional de Loja in Loja, Ecuador. Additionally, Dr. Arellano presented a paper titled “Are the mechanical properties of recycled-content expanded polystyrene (EPS) comparable to non-recycled EPS geofoam?” at the 2014 American Society of Civil Engineers Geo-Congress in Atlanta, GA, and also co-authored a paper titled “A new method for remediation of sandy slopes susceptible to seepage flow using EPS-block geofoam” that was published in *Geotextiles and Geomembranes*.

Holland Aguayo

› Student Spotlight ‹

Holland is a Senior Civil Engineering student who has been actively involved in the American Society of Civil Engineers and the Institute of Transportation Engineers student chapters. In addition to her chapter involvement she is a tutor with the West TN STEM Hub and works with students from around Shelby County to help them improve in math and science. She has been a mentor with the University of Memphis Girls Experiencing Engineering Program and feels that working with GEE has made her realize how important it is to reach out to others in the community and be a positive influence in young people’s lives. She believes using hands-on activities, as well as math and science, is an effective way to draw in students to possibly consider entering a field such as engineering. The fact that she can go to school and study what is her passion is what makes her get up each morning. Holland chose her major because civil engineering provides the ability to use math and science to help solve everyday problems and make people’s lives better. Holland excels both in and out of the classroom, and she plans to graduate December 2016 and pursue a master’s degree in Civil Engineering with a concentration in Transportation.



Dr. Mihalis Golias was an invited speaker at the Graduate Seminar at the Engineering Management and Systems Engineering, Missouri University of Science and Technology and at the Department of Civil and Environmental Engineering, University of Amherst, Massachusetts. Both lectures were on Game Theory Applications in Freight Operations. He published a paper in the *Computers and Operations Research Journal* and the *Transportation Research Record* of the National Academies and presented several papers at the 93rd Annual Meeting of the Transportation Research Board of the National Academies. He was elected the chair of the National Academies Transportation Research Board Ports and Channels Committee. He was awarded (as the sole PI) a project on Identifying Vulnerability of Networks by the Intelligence Community. Dr. Golias received the 2014 Memphis-Area Joint Engineers Council Featured Engineer Award and a Certificate of Appreciation from the Marine Environment Committee for Outstanding Service as the Paper Review Coordinator. Finally, Dr. Golias, in collaboration with Dr. Mishra introduced two new graduate courses to strengthen the department’s graduate curriculum in transportation. Dr. Golias serves on the University’s Faculty Senate, the Senate Executive Committee, and the Senate Research Committee.



Dr. Charles Camp has been working with several graduate students this past year on a variety of structural optimization research projects.



Dr. Camp

- **Dr. Andrew Assadollahi** graduated in Fall 2013 and is now an Assistant Professor at Christian Brothers University. He collaborated with Dr. Camp on “CO₂ and Cost Optimization of Reinforced Concrete Footings using a Hybrid Big Bang-Big Crunch Algorithm” which was published in *Structural and Multidisciplinary Optimization*. He has also submitted a follow-up paper on “CO₂ and Cost Optimization of Reinforced Concrete Footings Subjected to Uniaxial Uplift” to *Engineering Structures*. Drs. Camp and Assadollahi presented a paper during the 2014 Geo-Congress, Geo-Characterization and Modeling for Sustainability, in Atlanta, GA.

- **Dr. Sanaz Saadat** graduated in Summer 2014 and is now an engineer with Gilsanz Murray Steficek in New York City. Dr. Saadat worked with Dr. Camp on a series of projects: “Probabilistic Seismic Loss Analysis for Design of Steel Structures-Optimizing for Multiple-Objective Functions” submitted to *Earthquake Spectra*; “Seismic Performance-Based Design Optimization Considering Direct Economic Loss and Direct Social Loss” published in *Engineering Structures*; and the recently completed “Effect of Structural Height on Seismic Loss Evaluation in Optimal Performance-Based Design.” Drs. Camp and Saadat have several presentations during the upcoming ASCE Structural Congress 2015 in Portland, OR.



Dr. Saadat

- **Mohammad Farshchin**, a Ph.D. candidate graduating Fall 2015, is working with Dr. Camp on structural health monitoring of bridges. Working with local TDOT officials, Dr. Camp and Mohammad recently tested a bridge on I-385 near Arlington, TN. In addition, Dr. Camp and Mohammad published “Design of Space Trusses Using Modified Teaching-Learning Based Optimization” in *Engineering Structures*.

- **Darin Nelson** finished his Master’s degree (Summer 2014) work with Dr. Camp on “Cost and CO₂ Optimization of Reinforced Concrete Beams Using a Big Bang-Big Crunch Algorithm.” Nelson is now pursuing his Ph.D. at the U of M in Transportation Engineering with Dr. Stephanie Ivey.

Drs. Ivey and Palazolo led the 11th annual Girls Experiencing Engineering program this summer. Structured in series of one-week, 20-hour intensive sessions, GEE was able to accommodate 121 student participants, 20 peer mentors, and 107 middle and high school math and science teachers in its 2014 program. Over the course of the past 11 years, GEE has involved 608 middle school and 609 high school students, along with 526 teachers and 219 high school and college mentors. Importantly, approximately 85% of these girls represent minority groups traditionally underrepresented in STEM fields. In addition, longitudinal tracking of high school participants who have now graduated reveals 37% are pursuing STEM majors in college.



Dr. Stephanie Ivey

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Drs. Ivey, Golias, and Palazolo led the 5th annual TRansportation Engineering Careers program this summer for high school students. The 2014 TREC program included nearly 60 high school students who participated in a series of hands-on challenges designed to help students understand the variety of career opportunities available in transportation fields. In addition, Dr. Ivey was inducted into the University's Class of 2014 PI Millionaires. New this year, the University of Memphis was selected to host a replication site for the national STEM LASSO program. This week-long summer camp sponsored by Temple University's College of Engineering and NAVSUP-WSS engaged 20 students in exciting problem-solving and challenge opportunities centered on logistics and framed within a broader STEM context. Dr. Ivey served as PI for the project, with graduate student Kelsey Ford leading the program. Thank you to all of our alumni who served as speakers and mentors in the 2014 summer programs!

TREC participants compete in the rocket challenge



Department Alum Regina Kuykendoll Cash with the USACE speaks to the GEE girls about her career.

The Intermodal Freight Transportation Institute (IFTI) at the University of Memphis has been awarded a four-year grant by the Federal Highway Administration (FHWA) to host the Southeast Regional Surface Transportation Workforce Center. The center will serve a 12-state region in the Southeast as well as Puerto Rico. The primary goals of the Center are to inventory and promote existing regionally based transportation workforce programs, plans and processes; assemble a comprehensive picture of transportation job needs and priorities in the region; identify workforce training gaps that must be addressed; and strategically develop partnerships to create new workforce training to fill these gaps. Dr. Stephanie Ivey serves as the Director of this new center.



LASSO visits the FedEx Global Operations Control Maintenance Operations Control Center



Dr. Roger Meier is the principal investigator on a TDOT-sponsored research project to develop a system for evaluating asphalt pavement sealers. Asphalt pavement sealers are products applied to the surface of aging asphalt pavements to extend their life. TDOT use of asphalt pavement sealers is hampered by the proprietary nature of many of the products available. Because there are no applicable material specifications for these products there is no way to differentiate them or approve them for use on TDOT projects. This robs TDOT of the potential to use proprietary sealers that may perform better, last longer, and do less damage to the environment than non-proprietary products for which specifications already exist. The objective of this research is to develop a system of tests and test criteria for evaluating the efficacy and longevity of asphalt pavement sealers so TDOT can develop a Qualified Products List from which contractors can choose.



Drs. Mishra and Golias were awarded two projects co-sponsored by the Wisconsin Department of Transportation and the Tennessee Department of Transportation. These projects are (1) a guidebook for freight transportation planning using truck GPS data; (2) effect of primary and secondary crashes: identification, visualization and prediction. The projects have resulted in scholarly papers to be presented at the 94th Annual Meeting of Transportation Research Board in Washington DC, 2015. The papers are titled “Analysis of Freight Corridors Using Truck GPS Data” and “Identification of Secondary Crashes in Large-Scale Highway Networks.” Both papers are also considered for possible publication in journals.

Drs. Mishra, Golias, Ivey, and Dr. Martin Lipinski were awarded a project titled “Addressing MAP-21 Freight Objectives using GPS Data” sponsored by the National Center for Freight and Infrastructure Research and Education (CFIRE) and the U.S. Department of Transportation. The goal of this project is to develop Freight Performance Measures to meet MAP-21 objectives and apply the methodology in the CFIRE region. In addition to the University of Memphis, other collaborators in this project are Univ. of Wisconsin-Madison, Univ. of Southern Mississippi, Univ. of Alabama- Huntsville, and American Transportation Research Institute (ATRI).

Dr. Larry Moore received two new one-year contracts from the USEPA to continue energy conservation work at wastewater treatment facilities in Alabama, Mississippi, and Georgia. He also received a new one-year contract from the Tennessee Department of Environment and Conservation to conduct energy conservation studies at water and wastewater treatment plants in Tennessee during 2015. Moore presented a paper at the Water Environment Federation International Conference in New Orleans this past September. Dr. Moore was inducted into the University’s Class of 2015 PI Millionaires.



› Student Spotlight ‹

Noah Ketler

Noah received his Bachelor's in Business Administration in 2011 from Baylor University. He is currently a Senior in the Department of Civil Engineering pursuing his bachelor's. Noah has always enjoyed math and science and is motivated by having a physical representation of his work at the end of a project which has made civil engineering the career path for him. His favorite part of his major is how hands-on all of the classes are. From building concrete beams for a strength competition against classmates to trying to make dirty water clean through a miniature water filtration system, he really gets to apply what he learns.

Noah believes that civil engineers are constantly improving and finding new ways to make society more efficient. From highways to water treatment, sewage to bridges, and sidewalks to skyscrapers, civil engineers are the protectors of society's infrastructure. Noah has served as an ambassador for the West TN STEM Hub, and through this position, tutors K-12 students in math and science and encourages them to explore civil engineering as a career option. Noah is currently interested in both Structures and Transportation as a concentration.



Dr. Paul Palazolo made a presentation in October to the Tennessee Science Teachers' Association on using simple manipulatives (K'Nex) to enhance content in science classrooms. Dr. Palazolo is serving as the President-Elect of the American Society for Engineering Education-Southeast Section, and as the chair for the Instructional Division and the Vice-President of Awards and Recognition. Palazolo completed serving on the board of the First Year Programs Division of the American Society for Engineering Education-National. The Italian speaking professor traveled to Scotland, Italy, and Sicily and had the opportunity to visit the town where his father was born (Terrasini, Sicily).



› Student Spotlight ‹

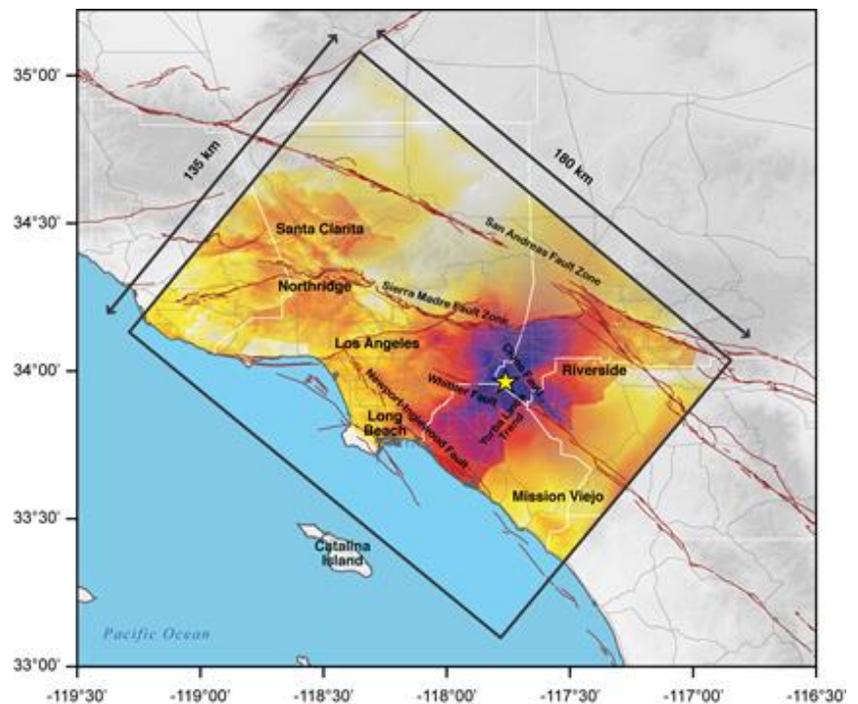
Congratulations
Mehrdad Hosseini,
Ph.D. (2014)

Dissertation: "Reducing Uncertainties in the Velocities Determined By Inversion of Phase Velocity Dispersion Curves Using Synthetic Seismograms."

Dr. Pezeshk's major contribution is that his 2011 publication (Pezeshk, Zandieh, and Tavakoli, 2011) was adopted in 2013 by the Electric Power Research Institute (EPRI) for inclusion in Nuclear Regulatory Agency (NRC) documents for seismic hazard analysis of all nuclear power plants. In 2013 the United States Geological Survey (USGS) adopted Dr. Pezeshk's 2011 publication to be used in developing the 2014 hazard maps that will be used for design of all buildings and bridges in Central and Eastern United States. Dr. Pezeshk had over 20 conference and journal articles presented and published in 2013-2014. Dr. Pezeshk was the recipient of the Herff College of Engineering Outstanding Research Award.

Dr. Ricardo Taborda has a joint appointment between the Department of Civil Engineering and the Center for Earthquake Research and Information at the University of Memphis. He has been working with two graduate students at CERI, Naeem Khoshnevis and Shima Azizzadeh-Roodpish, on various projects with the Southern California Earthquake Center (SCEC) and the U.S. Geological Survey on ground motion simulations of recent moderate earthquakes in southern California and the greater Los Angeles metropolitan area, in order to evaluate models used in seismology and engineering to assess seismic hazard. Initial results from these projects, sponsored by SCEC and the USGS, have been presented by Taborda and the students working with him at the annual meetings of the Seismological Society of America and the Earthquake Engineering Research Institute.

Taborda is also leading other efforts to advance similar investigations for the New Madrid seismic zone near Memphis. The image below shows the estimated ground motion amplitude in terms of horizontal magnitude of velocity for a 5.4 magnitude earthquake in the Los Angeles basin. These type of simulations are carried out in large scale supercomputers using thousands of processors. Numerical models range in the order of 5 to 15 billion finite elements, running on over 20,000 to 40,000 CPU cores for periods of up to 8 hours. Professor Taborda has access to these resources available only to selected researchers throughout the country, because of his participation as a senior investigator and a co-principal investigator in projects with collaborators from SCEC, who have been awarded computer time allocations by the National Science Foundation and the Department of Energy on the order of over 200 million processor-hours in 2014 and 2015.



Dr. Brian Waldron has continued to successfully run the Center for Partnerships in GIS (CPGIS) and the Ground Water Institute (GWI). Waldron's graduate student Sarah Girdner completed her thesis on the City of Memphis Color Study on the Mississippi River, which had the goal of developing a metric to determine when the public may perceive the mixed wastewater-river water color as "objectionable" as the wastewater enters the river. This unique study combines psychology and engineering principles to determine which environmental factors play a role in individual perception of water color. For more information about this study and other accomplishments through the GWI, see page 11.

› Alumni Spotlight ‹

Sonya Ellis

BSCE, May 2012

**Q: How did you get to the job you have today?**

A: I started off in the structural steel, heavy lift, and heavy transport industry. I loved what I did on a daily basis but after a year and a half I found myself exhausted from the long hours and always having a cell phone and computer with me (even on vacation and in the middle of the night). Looking at the senior engineers, I only saw the situation getting worse, and I knew that if I didn't change jobs soon I would end up in their shoes within a few years. In January I took a job as an engineer at the Memphis VA Hospital. I now manage a wide variety of construction contracts at the facility. While this is not quite as "fun" as my last job, it strikes more of a balance that allows me to enjoy life a little more with less stress.

Q: What is your job title and position?

A: General Engineer, Projects Section—the main duty I have is to manage construction contracts for the VA Memphis facility. I currently manage the new Bed Tower Expansion project that encloses a large courtyard and patio area (2 floors), moves and reworks the entrance to the building, and reworks both West parking lot entrances as well as part of the parking lot and landscaping. I also am managing the rehabilitation pool project; a replacement x-ray project with room renovations, and the emergency room expansion project. Managing contracts and projects for the VA also includes being part of the process for the concept and planning of the projects; integrating facility/medical needs with engineering needs and ensuring the design is acceptable and functional for all users. In addition to this, I also currently manage all of the leased space for our facility which is currently 8 leases with 5 additional leases that are in the beginning phases of procurement.

Q: What is the most interesting project you have worked on as a civil engineer?

A: I was able to work on the SR-99 Seattle Tunnel Boring Project, where the company I previously worked for was contracted to lift the world's largest tunnel boring machine (nicknamed Bertha) and place it into the receiving pit for boring operations. This required

a large modular lift tower with strand jacks at the top for lifting, and the entire tower slid in order to pick pieces off a hydraulic trailer and then place them in the receiving pit. There were months on end of meetings, planning, and coordination but it all paid off with a smooth job and a happy customer. I was able to visit the site while they were putting the tunnel boring machine pieces in the pit; it was amazing to see the whole thing in action.

Q: What has affected you the most about what you have experienced?

A: I would say the process of designing has affected me the most. You don't really understand the iterations and work that goes into a complete design until you have actually done one. Even then, you learn more and more how to ask the right questions and improve the process every time.

Q: What was the most important thing you learned while pursuing your degree?

A: We were told that engineers get paid for our "engineering judgment" but that it really is just common sense, and since nobody really wants to pay for common sense we have to call it "engineering judgment." This has been proven true and I have seen numerous examples. I can't count the number of times that I have been asked about something and the solution isn't all that complicated, it just takes some "engineering judgment" to see it. Sometimes we as engineers tend to complicate things; when I find that I can't see the forest through the trees I remind myself to step back and apply common sense.

Q: Any advice for new CE graduates?

A: Communication is important; work diligently at it! All the presentations and group projects were not in vain (I know you shudder as you read this). You hopefully have learned valuable lessons from them and will definitely be able to apply them in your career. There are engineers who cannot communicate well, those who just get by on knowledge alone, but those that can communicate and do well at it excel. It's not just about engineering and being smart, it's about the whole package.

Q: What is the most rewarding aspect of your career?

A: Nothing beats the feeling of accomplishment when you work intimately with a design from the conception through construction and completion.

**Q: Do you have any hobbies?**

A: I am a sucker for DIY home projects! The latest project is a facelift of our master bath. My husband, Garrett, helped me make a new countertop and install new sinks and faucets. It always ends up being more work than you think but is worth it in the end.

Ground Water Institute's (GWI) Research Projects

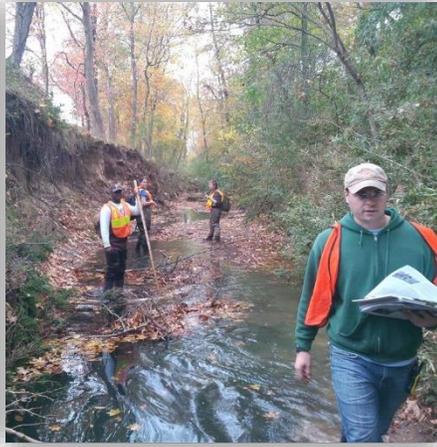
Applied research on water resources is a high priority at the GWI. Current research efforts involve contaminant source inventories, storm water impact, visual stream assessment, a study of the color of water and effluent discharges in the Mississippi River, recharge of the Memphis aquifer system, and age-dating of ground water. Many of the projects are research collaborations among private and public partners, and involve students and faculty from departments across the University of Memphis campus.

Contaminant Source Inventories: GWI conducts a Contaminant Source Inventory (CSI) annually for Memphis Light, Gas & Water (MLGW) and Shelby County municipalities, as required by the State of Tennessee, to help protect drinking water sources. Since ground water is the sole source of drinking water in Shelby County, it is important to understand potential contaminant sources within Wellhead Protection Areas. Students help conduct CSIs and become familiarized with regulatory requirements and various state and federal databases.

City of Memphis Storm Water Control: This project is in partnership with the City of Memphis and seven engineering firms to model the impact of rain events on the storm water system within specific drainage basins throughout the city. The GWI's role includes equipment installation and data collection from a network of rain and stream gauges installed by the Institute. This work is critical for storm water planning and mitigating flooding issues.



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Shelby County Visual Stream Assessment: The GWI in coordination with the Center for Partnerships in GIS (CPGIS) assessed approximately 160 miles of streams for Shelby County Public Works this past winter. Students braved the wet and cold to record impairments such as trash, erosion, and exposed pipes, and general stream conditions on a computer tablet running a custom-built GIS mobile application designed by CPGIS. Data collected will help Shelby County identify problem areas and help improve the overall stream conditions in Shelby County.

City of Memphis Color Study on the Mississippi River: For aesthetic and recreational purposes, the Environmental Protection Agency (EPA) recommends that recreational waters

be free from substances that produce an objectionable color. As such, the City of Memphis' Division of Public Works has partnered with the GWI to develop a metric to determine when the public may perceive the mixed wastewater-river water color as "objectionable" as the wastewater enters the river. This unique study combines psychology and engineering principles to determine which environmental factors play a role in individual perception of water color.

Mentoring a U of M Green Intern: During the 2014 spring semester, the GWI mentored a Green Intern as part of the internship program through the University's Office of Academic Internships. The student, Katie Dagastino, helped with education and outreach activities as well as GWI field research. Katie is an Earth Sciences undergraduate student and is seeking to continue to work as a Green Intern with the GWI during the fall semester.



Community Involvement: The GWI continues to be active in the community, providing information to various audiences about the source of its drinking water and why and how it should be protected. In 2014 community activities included participation in public events, university events, and private events hosted by local schools and nonprofit organizations.

Participating in public events such as the Down to Earth Festival at Shelby Farms, the DeSoto County Earth Day Festival, and the Memphis Botanic Garden Earth Day events allowed the GWI to reach a wide audience. These combined events allowed the GWI to interact with hundreds of people of all ages.

The GWI also participated in annual University of Memphis events, including the spring Earth Day Celebration and the fall Tiger Blue Goes Green sustainability event. Hundreds of people attended each of these events.

Local schools and organizations asked the GWI to collaborate with presentations and workshops to K-12 teachers and students, including the Wolf River Conservancy, the Memphis Botanic Garden, the Dixon Gallery & Gardens, Bridges USA, and Shelby County Schools.

During all of these events, the GWI had staff and students on hand to demonstrate how our aquifer system works and to answer questions about all things related to ground water.

The Water on Wheels Mobile: An exciting addition to the GWI is the Water on Wheels (WOW) Mobile, a 24' trailer that brings the museum experience to schools and festivals. This new addition was made possible by a generous gift from the International Paper Foundation. The WOW Mobile contains colorful and interactive exhibits that educate visitors about water science. Its purpose is to help visitors understand that water is necessary for all living things, and that the quality and quantity of water affect our daily lives. Exhibits in the WOW Mobile feature the water cycle, watersheds, the Memphis aquifer system, water usage in the home, and the difference between our local sanitary and storm water sewer systems. Other water topics are addressed as well. Additionally, select teachers from the 2013-2014 Shelby County Schools System created lesson plans to complement the interactive WOW experience. These lesson plans incorporate the Common Core and Next Generation Science Standards and are designed for use in grades 4 through 6 classrooms. The WOW website can be found at www.memphis.edu/wateronwheels.



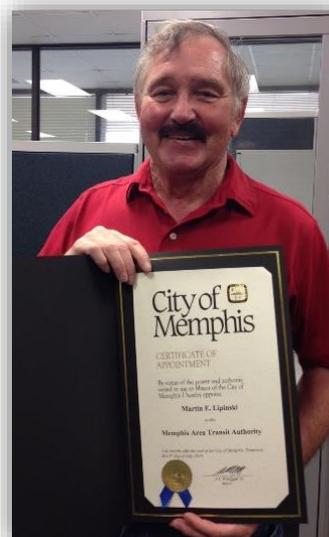
Intermodal Freight Transportation Institute (IFTI)

IFTI Designated as Southeast Transportation Workforce Development Center (SETWC): IFTI received a four-year grant from the Federal Highway Administration (FHWA) to host the Southeast Transportation Workforce Development Center (SETWC). The Center will serve a 12-state region in the southeastern US and Puerto Rico, and is part of the National Network for Transportation Workforce. While the Center addresses the broad goals of transportation workforce development throughout the region, it also focuses on the following areas of national expertise: women in transportation, freight (rail, trucking, warehousing, and logistics), and veterans' transition into the transportation workforce.



IFTI Addressing National Council of Geographic Education: Dan Pallme was a featured presenter at the 2014 National Council for Geographic Education (NCGE) conference—a non-profit organization, chartered in 1915 to enhance the status and quality of geography teaching and learning. NCGE supports geography teaching at all levels, and its members include U.S. and International teachers, professors, students, businesses, and others who support geographic education. The MPO suggested Dan as a speaker. Dan spoke to the group and then hosted a window tour of the businesses related to the transportation industry around the Lamar Avenue Corridor. About 45 people participated in the tour and presentation.

Dr. Martin Lipinski Appointed to MATA Board: Dr. Lipinski is making sure that Memphis area bus passengers enjoy their experience! “Dr. L” was recently appointed to



the Memphis Area Transit Association (MATA) Board of Commissioners. This entity governs over policy for the agency. The MATA Board is appointed by the Mayor of Memphis and approved by the Memphis City Council.

IFTI Participates in White House Roundtable: Dr. Stephanie Ivey, IFTI Researcher, and Dan Pallme, IFTI Director, participated in a White House roundtable on building connected and sustainable communities. The roundtable was hosted by the Partnership for Sustainable Communities and Mayor AC Wharton. USDOT Transportation Secretary Foxx, US HUD Secretary Donovan, Administrator of US EPA McCarthy, and Federal Co-Chairman of Delta Regional Authority Masingill were featured guests. These groups have been working with the City of Memphis and other communities across the country under the Partnership for Sustainable Communities for 5 years. The roundtable allowed Memphis community leaders and our very own IFTI representatives an opportunity to share local success stories and discuss remaining challenges with senior Administration Officials.

IFTI Student Research Paper Wins!

IFTI student researcher, Jim Mersereau (MSCE 2014), was recently notified that his student paper, "Accessing and Increasing Safety at the Intersection of Lambuth Boulevard and Wisdom Street in Jackson, Tennessee," was awarded Third Place in the Tennessee Section ITE's annual student paper competition.



Kelsey Ford Represented U of M: Kelsey Ford (BSCE 2012) (MSCE 2014), an IFTI student researcher and graduate student was selected to represent U of M at the Graduate Education Day Celebration at the Legislative Plaza in Nashville. Ms. Ford and Dr. Karen Weddle-West, Provost at U of M, had lunch with the Shelby County Legislative Delegation and spoke with other state legislators throughout the day about Kelsey's research and the importance of Graduate Education in Memphis and Tennessee.

CFIRE National Freight Symposium: The students associated with IFTI traveled to the University of Southern Mississippi-Gulf Park to attend the 2nd annual National Freight Student Symposium. The seven students from U of M presented research work, participated in a team competition, listened to presentations made by public and private industry professionals and participated in interview sessions with transportation companies. The University of Memphis hosted this event last year as part of our membership in the National Center for Freight & Infrastructure, Research & Education (CFIRE).



Institute of Transportation Engineers (ITE) Student Chapter

Tennessee Section of ITE Traffic Bowl Champions: The U of M ITE Chapter won State in the Traffic Bowl Competition. Team members Kelsey Ford (left), Darin Nelson (middle), and Annie Wise (right) then traveled to the District competition where they placed 3rd in the Southern District.



American Society of Civil Engineers (ASCE) Student Chapter

Deep South Conference Hosted by CBU: The ASCE Student Chapter competed in the Deep South Concrete Canoe competition in Memphis hosted by Christian Brothers University. The competition was held at Shelby Farms and the chapter did very well. The ASCE chapter is in the process of redesigning the canoe for the 2015 competition with the hopes of doing even better.

Career Fair: The ASCE Student Chapter hosted both a Fall and a Spring Career Fair last year. Now in its 14th year, the Career Fair is held in the Civil Engineering hallway to directly connect local civil engineering employers with civil engineering interns and graduating seniors. Among the participants were representatives from local engineering companies as well as the City of Memphis, MLGW, Arkansas Highway and Transportation Department, TDOT, TDEC, and the U.S. Army Corps of Engineers.

Holiday Potluck: ASCE jointly hosted a Holiday Potluck with the ITE chapter.



Jason Simpson; and Ashley Evans). Students were supported partially by the Dept. of Civil Engineering and partially from fund raising through our graduates and local companies. The team placed 14th out of 32 teams. This was ahead of universities such: Univ. of Minnesota-Minneapolis; Univ. of Nevada-Reno; Rice University; Oregon State Univ.; Purdue Univ.; Univ. of Southern California; Univ. of Massachusetts-Amherst; Iowa State Univ.; and Univ. of Missouri, Columbia.

EERI Hosted Guest Speaker: The EERI student chapter of the U of M (www.ce.memphis.edu/eeri) hosted Dr. Annie Kammerer (currently a Principal Seismologist at Bechtel Corporation and a visiting scholar at the Pacific Earthquake Engineering Research Center at UC Berkeley), as part of the EERI-Friedman Family Visiting Professionals Program. Dr. Kammerer made two presentations: "Overview of the risk evaluation method and seismic regulations for design of nuclear plants," and "Lessons and Insights."



Earthquake Engineering Research Institute (EERI) Student Chapter

Balsa Wood Undergraduate Seismic Design Competition: The EERI Student Chapter participated in the Balsa Wood Undergraduate Seismic Design Competition, which was held in conjunction with the 66th EERI Annual Meeting in Anchorage Alaska. Four students from Memphis attended the meeting (Mellisa Difillippo; Jay Kshatriya;

Engineers Without Borders (EWB) Student Chapter



New Plan: The EWB Student Chapter provides students with the opportunity to experience other cultures and use their engineering skills to help a community. The chapter previously worked with a community in Bolivia, but is now currently working with the professional chapter to determine another community to go into and help. This is a unique opportunity for the students to work with professional engineers to determine a solution to an engineering problem.

Herff College of Engineering Awards to Civil Engineering Department



Dr. Shahram Pezesk received the 2014 Herff College of Engineering Outstanding Faculty Research Award



Dr. Charles Camp received the 2014 Herff College of Engineering Outstanding Faculty Teaching Award



Kimberly Grantham received the 2014 Herff College of Engineering Outstanding Staff Award

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