

THE

REDLINE

NEWS FOR ALUMNI AND FRIENDS
OF THE UNL DEPARTMENT
OF CIVIL ENGINEERING



Vol. 3, FALL 2016

From the Department Chair



Daniel Linzell, Chair

I hope you are enjoying the glorious fall weather and basking in the wonderful start to the Nebraska football season! While our successes on the gridiron certainly makes all of us proud to be Huskers, in my opinion it is the scholastic successes, both by our students and faculty, which deserve

the most attention and accolades. I am consistently amazed by the accomplishments of our students, faculty and alumni, and you will see a number of successes during the past year that are highlighted on the pages that follow.

As you leaf through the REDLINE you will notice that the successes I allude to are occurring in all of our emphasis areas and involve undergraduate and graduate students in Lincoln and Omaha who are directed by talented senior, mid-career, and recently affiliated faculty in our department. One of my governing tenets as Chair is that, while everything our department does must focus on our students and what they learn and accomplish, our success in all areas truly centers on successfully hiring and retaining exceptional faculty.

Earlier editions of the REDLINE briefly highlighted faculty additions using biographical statements related to their backgrounds and areas of expertise. Given the sheer volume of these additions during the past three years, it was decided that this edition would collectively highlight those faculty, describing who they are, what they do, and, most importantly, letting each individual express what attracted them to the

University of Nebraska-Lincoln and provide some insight into the personal highlights and successes that occurred since they arrived. When you read these statements I hope you will agree that we have added a very strong, successful and energetic group of tenured, tenure-track, and teaching and research focused individuals. Their collective expertise serves to continue our history of excellence while concurrently helping move us to new and exciting levels of success.

Our new additions cannot succeed in a bubble, and it would be foolish of me to not recognize and thank our existing faculty for providing guidance and many, many examples of what a successful UNL faculty member should encompass from teaching, researching and public service and outreach perspectives. Without the leadership of these individuals, and the support of our excellent staff, the likelihood of new faculty growth and success would considerably diminish.

So, sit back and enjoy reading our third edition of the REDLINE and observing the great things we are doing while envisioning even greater things that our department will do. Enjoy the rest of 2016 and please keep in touch!

Daniel Linzell

Voelte-Keegan Professor and Chair



Showcasing our New Faculty

The department has grown a lot since 2013! We asked our recently affiliated faculty to tell us about their experience, research and teaching interests, and why they chose to come to Nebraska.

Dr. Ashraf Aly Hassan

Dr. Aly Hassan joined the department in Fall 2016 as a Research Assistant Professor. He came from a startup company where he was heading the R&D department. Dr. Aly Hassan previously worked for the Nebraska Department of Environmental Quality (NDEQ) and at the labs of the US Environmental Protection Agency (EPA). He obtained his Ph.D. from the University of Cincinnati, M.S. from Wageningen University, the Netherlands, and B.S. from Cairo University, Egypt.

His research interests include atmospheric air pollution control, fate and transport of hazardous contaminants in the air with focus on air dispersion modeling, environmental biotechnology for destruction of hazardous air pollutants (HAPs) and volatile organic compounds (VOCs), biofilm research for air quality, and renewable energy for environmental sustainability. Dr. Aly Hassan is interested in the fate and transport of nanoparticles in the environment and their interaction with microorganisms. His work on algae led to a new approach for biological desalination with a patent pending.

For Dr. Aly Hassan, it was obvious how the Department of Civil Engineering contributes to the advancement of science and to the wellbeing of every Nebraskan. “The quality of UNL students who were hired or are pursuing internships at the NDEQ caught my attention,” said Aly Hassan. “The quality and technical knowledge possessed by the engineering graduates suggests a solid department with a significant mission.” Dr. Aly Hassan was convinced that the civil engineering department at UNL would be the best place to continue his research and provide meaningful contributions to the people of Nebraska.



Ashraf Aly Hassan examining samples in the environmental research lab



Chittaranjan Ray

Dr. Chittaranjan Ray

Chittaranjan Ray became director of the Nebraska Water Center (NWC) and part of the leadership team of the Robert B. Daugherty Water for Food Global Institute in August 2013.

Before arriving at UNL, Ray was a Professor of Civil Engineering at the University of Hawaii at Manoa (UHM), where he was also interim director of the Water Resources Research Center at UHM. Ray also directed UHM’s Environmental Center and worked as the Chief Environmental Engineer for the Applied Research Laboratory, a U.S. Navy sponsored facility at UHM. Before joining UHM faculty in 1997, Ray held positions in industry and at the Illinois State Water Survey. He holds a Ph.D. in civil engineering from the University of Illinois and has extensive experience in many facets of managing both water quantity and water quality issues.

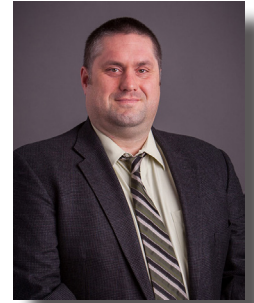
“As a UNL Department of Civil Engineering faculty member, my primary interests lie in leading and helping to form multi-disciplinary research collaborations, particularly in the areas of water quality and quantity that are relevant to Nebraska,” Ray said. Since coming to UNL, he has been named principal investigator or co-P.I. on a number of research projects, among the most notable of which is a nearly \$1 million grant from U.S. Department of Agriculture/NIFA for the UNL component of a regional project on “Sustaining Agriculture through Adaptive Management to Preserve the Ogallala Aquifer under a Changing Climate”, which is being led by Colorado State University and also involves Kansas State, Oklahoma State and New Mexico State Universities as well as Texas A&M, AgriLife and Texas Tech University.

Showcasing our New Faculty



Dr. George Hunt

Dr. George Hunt joined the department in the Fall 2016 as an Assistant Professor of Practice. He received his B.S. in Physics with a minor in Mathematics from Miami University (Oxford, OH), and an M.E. and Ph.D. in Civil Engineering, specializing in environmental engineering, from the University of Virginia. His graduate research focused on hydrodynamic and water quality modeling of coastal waters. Dr. Hunt has over 13 years of professional experience in civil engineering both in engineering consulting firms as well as at state and federal agencies including the North Carolina Division of Water Quality and the U.S. Army Corps of Engineers. Most recently, Dr. Hunt was a senior civil engineer at Burns and McDonnell in Omaha, Nebraska. His research and teaching interests are in the areas of surface water hydrology and hydraulics, hydrodynamic and water quality modeling, and watershed management. He is a licensed professional engineer in the state of Iowa.



George Hunt

Dr. Hunt will be involved in many aspects of the department. He is currently scheduled to teach Senior Design and Professional Practice courses and will be involved in undergraduate advising on the Omaha campus. He will also be assisting with development and implementation of professional Master's degree programs in the Department of Civil Engineering.

“After a career in the public and private sectors, I was excited to be given the opportunity to return to the classroom to educate and influence the next generation of civil engineering students in Nebraska.”



Dr. John Sangster

Dr. Sangster joined the department in Fall 2015 as an Assistant Professor. He received his Ph.D. and MS from Virginia Tech in 2015 and 2011, respectively. Prior to his return to graduate school, he worked as a practicing engineer for seven years in Chicago and New Hampshire. His practice experience focused on roadway design and traffic engineering, with his dissertation research combining the two, on the topic of vehicle operations at alternative intersections.

John Sangster receiving the Omicron Delta Kappa Professor of the Month Award for November 2015. Dr. Sangster was selected for the award because of “his commitment to education and the impact he has made on his students”.

Research by Dr. Sangster and his graduate students focuses on modeling and simulation of traffic scenarios to better understand the operational and safety impacts of our roadway design decisions. Specific ongoing research topics include the analysis of best practices for road diet implementations in Nebraska, comparison of analysis tools to assess operations at roundabouts,

exploration of capabilities and limitations of various commercial traffic simulation software applications, and exploratory research investigating driver behavior analysis utilizing a driving simulator.

“My most rewarding work at UNL has been applying my experience to bridge the gap between theory and practice in my courses,” said Sangster. “By providing the foundational academic background in parallel with realistic situated design experiences, I hope to ease the transition for graduates preparing to enter the workplace. My goal is to help them be more successful in their future careers.”

Randall Peters

Mr. Peters joined the department in Fall 2015 as an Associate Professor of Practice. Prior to joining UNL, he served as Director-State Engineer for the Nebraska Department of Roads. During his 38-year tenure with NDOR, he was engaged in transportation planning, roadway design, traffic engineering and project development. He worked with diverse teams within and outside of the agency to build hundreds miles of new expressways and to rebuild Interstate 80 between Lincoln and Omaha.



Randall Peters speaking at the grand opening of Omaha to Lincoln Interstate 80 six-lane modernization project



Showcasing our New Faculty

Peters' teaching interests include professional practice areas such as project management, public policy, professional ethics, communications, leadership and multi-disciplinary design. He is a member of ASCE with emphasis in the Transportation and Development technical area.

“Throughout my career as a Professional Engineer in Civil Engineering in the transportation community, I’ve come to value the importance of connecting students and teachers with practitioners and stakeholders. I’m very excited by the opportunity to join with others on the UNL Civil Engineering Department team to lead in this arena”.

Dr. Chungwook Sim

Dr. Sim joined the department in Fall 2015 as an Assistant Professor. He came from Purdue University, where he was a postdoctoral research assistant at the Center for Earthquake Engineering and Disaster Data. He earned his Ph.D. from Purdue University, M.S. from the University of Texas at Austin, and a B.S. from Yonsei University, Seoul, Korea. Previously, he worked at the Hyundai Research Institute of Construction Technology as a research structural engineer for four and a half years in Korea.

Dr. Sim’s research interests include modeling and testing of reinforced concrete members under extreme load events (earthquake, blast, temperature, corrosion, and wind), development of data repositories for multi-hazards, and health monitoring of aging infrastructure. He is a member of ACI Committee 133 – Disaster Reconnaissance, and recently returned from Ecuador where he surveyed 170 buildings to study the performance of low-rise reinforced concrete structures damaged during the 2016 Ecuador Earthquake.



Chungwook Sim surveys buildings affected by the 2016 earthquake in Ecuador

“During my first visit, I immediately realized that UNL Civil Engineering is a special place and after my first year at UNL, I confirm that our department is filled with an interactive and collaborative environment, innovative experimental research facilities (large-scale structural lab at PKI and Lincoln campus), has an exciting vision and receives strong support from administration to advance our civil engineering research and education.”



Nebraska Gov. Pete Ricketts (left), talks with Midwest Roadside Safety engineers Robert Bielenberg and Jennifer Schmidt and Manitoba Infrastructure and Transportation design engineer Andy Pankratz as they inspect a concrete barrier during a Midwest Roadside Safety Facility test.

Dr. Jennifer Schmidt

Dr. Jennifer Schmidt became affiliated with the civil engineering department in Fall 2015 as a Research Assistant Professor and holds an appointment with the Midwest Roadside Safety Facility (MwRSF). Dr. Schmidt earned her Ph.D., M.S., and B.S. in civil engineering from the University of Nebraska–Lincoln and is a licensed civil engineer in the State of Nebraska.

Dr. Schmidt’s primary research focus is the analysis and design of roadside safety hardware through the use of non-linear finite element analysis and full-scale crash testing. Current research includes the design and evaluation of a bridge rail and deck system subjected to a vehicular impact by an 80,000-lb tractor-trailer and the development of a new energy absorbing barrier for highway applications, which was adapted from the SAFER Barrier technology that was developed for IndyCar and NASCAR racetracks. Dr. Schmidt has

created and validated computer simulation hardware and tested barrier impact simulations to predict system performance before conducting full-scale crash testing.

“As a Nebraska native, UNL has always felt like home. During my graduate research studies at the Midwest Roadside Safety Facility, I learned the significance of developing and evaluating roadside safety features. I wanted to continue to enhance the safety of American highways by reducing severe injuries and fatalities that may otherwise occur when errant vehicles leave the roadway. The civil engineering department has provided me the opportunity to work with many brilliant undergraduate and graduate students and faculty that are working towards ensuring safer roadways.”



Jongwan Eun

Dr. Jongwan Eun

Dr. Jongwan Eun joined the Department in Fall 2016 as an Assistant Professor. He received his Ph.D. from the University of Wisconsin-Madison in 2014 and M.S. from the University of Texas at Austin in 2010. Before joining UNL, he worked as a lecturer and a research associate at New York University Abu Dhabi (NYUAD) and was as a postdoctoral research associate in Geological Engineering at UW-Madison.

Dr. Eun led global research projects related to oil recovery enhancement with electro-osmosis and sustainable farming systems by using renewable energy when he was in NYUAD.

During his two year-postdoc at the University of Wisconsin-Madison, he developed and managed diverse projects related to field monitoring of wind turbine foundations, geothermal heating and cooling systems, engineering characterization of recycled materials, and geosynthetics. For his PhD, he evaluated the performance of a multilayer barrier system containing an innovative material (EVOH geomembrane) for containing aqua phase VOC and greenhouse gases. Currently, his research interest is focused on the analysis and design optimization of geotechnical and geoenvironmental systems, sustainable geotechnics, and radioactive material disposal facilities.

“I am very excited to work with great colleagues at the department in an interactive and collaborative atmosphere. Also, I look forward to interacting with and instructing students in new and interdisciplinary courses, such as Geoenvironmental Engineering.”

Dr. Richard Wood

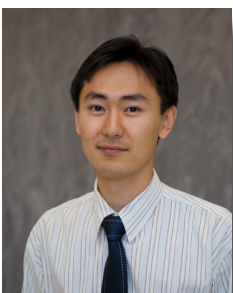
Dr. Wood joined the department in Fall 2013 as an Assistant Professor from the University of California, San Diego, where he was a postdoctoral research fellow in the Department of Structural Engineering. He earned his Ph.D. and M.S. in Structural Engineering from the University of California, San Diego and a B.S. in Civil Engineering from Clarkson University.

His research focuses on remote sensing, structural damage assessment following routine and extreme loads, and structural dynamics of civil infrastructure including buildings, bridges, terraced slopes, and built-up urban environments. Data collection platforms include ground-based lidar, unmanned aerial systems, and distributed accelerometer networks to characterize global deformations and local deformations of cracks and spalling. Recently, his research team was collaboratively investigating infrastructure performance following the 2015 Gorkha earthquake in Nepal and the late-season 2015 EF-3 tornado near Pampa, Texas. His research team also investigated the performance of inverted tee bridge structures and low-volume gravel roads throughout Nebraska.



Richard Wood (second from right) and his research team in Palma, TX

“UNL has great research resources and facilities to combat today’s interdisciplinary research problems.”



Seunghee Kim

Dr. Seunghee Kim

Dr. Kim joined the department in Fall 2016 as an Assistant Professor. Before joining UNL, he was an assistant professor in the Department of Civil Engineering at Western New England University and a postdoctoral fellow at the Bureau of Economic Geology, a part of the University of Texas at Austin. He earned his Ph.D. from the Georgia Institute of Technology and his M.S. and B.S. from the Korea Advanced Institute of Science and Technology (KAIST), South Korea. Previously, he worked at the Korea Institute of Civil Engineering and Building Technology (KICT) as a researcher and at Dongho Co., Ltd. as an assistant manager.

Dr. Kim’s research interests include hydro-chemo-thermo-mechanically coupled processes during energy-related operations, pore-scale reactive/multiphase fluid flow in porous media, and underground utilization/storage. His goal is to make contributions to addressing energy and sustainability problems – examples include CO₂ geologic storage, energy storage, enhanced geothermal energy, and wastewater



Showcasing our New Faculty

injection. He is a member of Sigma Xi, the American Society of Civil Engineers, the Association of Environmental and Engineering Geologists, and the American Geophysical Union.

According to Dr. Kim, what excites him most about UNL Civil Engineering is the people. “I am very excited about working with many faculty members in UNL Civil Engineering. UNL has a big civil engineering program, and its faculty members demonstrate a broad research spectrum. Working with them should result in great synergy that helps us push the limit.”



Jinying Zhu

Dr. Jinying Zhu

Dr. Jinying Zhu is an Assistant Professor in the Department of Civil Engineering at the University of Nebraska–Lincoln. She received her Ph.D. degree from the University of Illinois at Urbana-Champaign in 2006. Before joining UNL in 2014, she worked at CTL Group and the University of Texas at Austin.

Dr. Zhu’s research interests include nondestructive evaluation/testing (NDE/NDT) of concrete materials and structures, innovative sensor development, and wave propagation. She is the lead inventor of non-contact air-coupled sensing and excitation (patent pending) technology for concrete NDT. Dr. Zhu is the recipient of the 2012

American Society for Nondestructive Testing Fellowship Award and three time winner of the American Concrete Institute’s James Instrument Award. She has led and participated in multiple research projects funded by federal, state agencies and industrial partners. Recently, she received an R&D award from the Department of Energy to develop an online monitoring system for alkali-silica reaction affected nuclear concrete structures. She is currently an associate editor for the Journal of Nondestructive Evaluation.

“I am really impressed with the strong support for research and education at all levels at UNL – department, college, and university. The university offers many workshops to help new faculty get off to a good start, and provides research initiatives to encourage collaboration across campuses. I am excited about the new opportunities in Nebraska, and enjoy the working environment in the department.”

Dr. Joshua Steelman

Dr. Steelman joined the in Fall 2013 as an Assistant Professor. He came from the University of Illinois at Urbana-Champaign, where he earned his Ph.D. and M.S. He earned his B.S. from the University of Tennessee at Knoxville. Prior to returning to obtain his graduate degrees, he worked as a structural engineering design consultant in Huntsville, AL, for four years.

Dr. Steelman’s research interests include fusing structural systems for protection against extreme events, risk and reliability assessment and performance-based engineering, and infrastructure assessment, maintenance, and management, particularly for steel bridges. He teaches the Junior-level Introduction to Structural Engineering course on the Lincoln campus, as well as Steel Design at the Senior undergraduate and graduate levels. He is also the ASCE Student Chapter Faculty Advisor for the Lincoln campus.

“One of the primary reasons I decided to come to Nebraska was because of Dr. Dan Linzell, who had recently accepted the position of Civil Engineering Department Chair. Dr. Linzell has a demonstrated history of success through diverse research sponsors, including transportation research on bridges at the national level with FHWA and force protection with the Department of Defense. Dr. Linzell’s path to success is one that I want to emulate, and he has been a valuable and supportive colleague and department chair since my arrival.”



Joshua Steelman

ACCOMPLISHMENTS / UPDATES



Yusong Li

Dr. Yusong Li, Associate Professor, was awarded the Maher and Lorees Tadros Faculty Recognition Award. The award, founded by emeriti professor Maher Tadros and his wife Lorees, recognizes the most improved researchers and teachers in the Department of Civil Engineering.

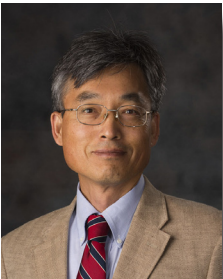


Dr. Shannon Bartelt-Hunt, Associate Professor, was awarded the Holling Family Distinguished Senior Faculty Teaching Award from the College of Engineering. The award recognizes Dr. Bartelt-Hunt's excellence in teaching based on teaching evaluations, advising and mentoring activities, and her devotion to improving her teaching skills.



Shannon Bartelt-Hunt

The National Strategic Research Institute at UNL was awarded \$1 million by US Strategic Command to continue research on traffic calming elements and roadway geometry to enhance security and safety at military entry control points. The University Affiliated Research Center will provide research detailing the delays produced by current traffic control devices in an effort to determine the latest solutions to help protect military entry facilities. **Dr. Laurence Rilett**, the director of the Nebraska Transportation Center and a professor of civil engineering, will serve as principal investigator and will lead the UNL research team.



Chung Song

After studying the aftermath of Hurricane Katrina, **Dr. Chung Song** has developed caps for concrete levee walls. The caps could be placed atop where two sections of the foot-thick walls meet, providing support to both sections. They cost about \$40 each. Dr. Song believes this could save billions of dollars versus the cost associated with renovating the flood wall system.



Laurence Rilett

Dr. Jinying Zhu will lead a team of engineers and scientists from across the country to develop an online monitoring system for evaluation of the health and durability of concrete structures, particularly nuclear power plants, that are affected by alkali-silica reaction (ASR). Zhu's team earned a three-year, \$800,000 grant from the Department of Energy's Nuclear Energy University Program (NEUP) to develop an online monitoring system that evaluates the initiation, extent and rate of ASR degradation.



"Contributions of Internal and External Fouling to Transmembrane Pressure in MBRs: Experiments and Modeling," co-authored by UNL civil engineering faculty **Dr. Tian Zhang** and **Dr. John Stansbury** and graduate student Meng Hu, was chosen to receive the prestigious Rudolph Hering Medal. The medal is awarded to the author or authors of a paper that contains the most valuable contribution to the increase of knowledge in, and to the advancement of, the environmental branch of the engineering profession. The article was published in the June 2015 edition of the ASCE's Journal of Environmental Engineering.



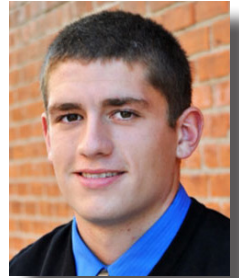
John Stansbury



Tian Zhang

ACCOMPLISHMENTS / UPDATES

Derek Schriener, a recent graduate of the Department of Civil Engineering, was awarded a \$3,500 John A. Focht Chi Epsilon National Scholarship at the National Conclave, held March 10-12 in Boston. Schriener plans to begin graduate school at the University of Utah, where he will study water runoff and the impact urban greenspaces can have on nearby streams and lakes.



Derek Schriener

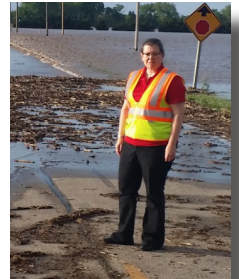


Austin Yates

UNL Civil Engineering alumnus **Austin Yates** was featured on an episode of “Jeopardy!” Although Yates did not win, he says he was able to scratch “a big item” off of his bucket list.



UNL Civil Engineering alumnus and Nebraska Lancaster County Engineer **Pam Dingman** was featured in a CNN Money spotlight showcasing women who are “turning science into cash.” Dingman is Nebraska’s first female county engineer, and invites young girls to shadow her on the job to learn about civil engineering.



Pam Dingman



Zhang selected as AAAS fellow

Professor Tian Zhang was among a record eight UNL faculty members who have been named fellows of the American Association for the Advancement of Science, the world’s largest general scientific society.

Fellows are selected by their peers for scientifically or socially distinguished achievements that advance science or its application. Dr. Zhang’s fellowship was announced in the November 27 issue of the journal *Science*, and was recognized at the AAAS annual meeting in Washington, D.C., on February 13.

Zhang’s research focuses on water and wastewater treatment as well as hazardous remediation. He also contributes significantly to an international collaboration that produces books on critical global topics.

Zhang’s work has helped advance wetland restoration, nutrient mitigation in agricultural settings, greywater reclamation and reducing nitrates and other contaminants in groundwater. He also studies creating biofuels and other bioenergy sources from biodegradable waste and other organic matter.

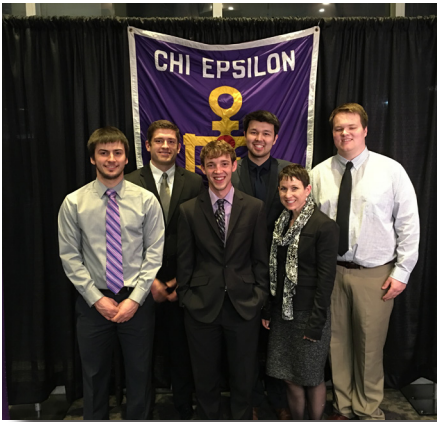
In a recent deviation, Zhang collaborates with UNL electrical engineers and University of Nebraska Medical Center researchers to develop cancer detection tools. The ability to immediately differentiate between normal cells and cancer cells will help surgeons safely remove cancer tissue during breast lumpectomies while preserving healthy tissue.

Zhang also is highly regarded for his volunteer activities as an international adviser and for his tremendous productivity in writing and coordinating the publication of numerous multi-authored books on current topics, such as climate change, nanotechnology and carbon sequestration.

Zhang said he was surprised and excited by his AAAS fellowship, and appreciates the recognition.

Out of the over 90 institutions boasting a new inductee as a fellow in AAAS around the country, UNL was ranked second in the United States in the number of new AAAS fellows.

Student Organizations



Chi Epsilon students at the National Conclave

Chi Epsilon

Chi Epsilon is an honor society recognizing civil engineering students for their strong performance both in the classroom and beyond. As juniors or seniors, students are elected into the student chapter at the University of Nebraska–Lincoln. Members of Chi Epsilon partner with the Department of Civil Engineering in service, social, and educational activities. As a part of the larger national organization, it shares the goal of promoting civil engineering as a profession.

For the 2015-16 year, the student chapter at UNL inducted eight students into Chi Epsilon. Guest speaker at the induction ceremony was Mr. Randy Peters who spoke on the pillars of Chi Epsilon and service to the community as a civil engineer. The Omaha chapter

inducted eight new members into their Chi Epsilon chapter and also elevated Dr. John Hartwell, SCS Aquaterra, as a chapter honor member. Dr. Jiong Hu was inducted as a faculty member, and he will serve as Omaha chapter advisor for the 2016-2017 academic year.

In March 2016, six students from the Omaha chapter (Derek Schriener, Zach Mahon, Shelly Jorgensen, Eric Derickson, Ziggy Niazie and Greg Decker) and 2 students from the Lincoln chapter (Trevor Morrison and Garrett Martindale) attended the Chi Epsilon National Conclave in Boston, MA hosted by Northeastern University.

In conjunction with the Nebraska ASCE chapter, students from the Omaha Chi Epsilon chapter conducted a second annual engineering week event which paired Professional Engineers and Chi Epsilon students to make presentations at elementary and middle school classrooms across Omaha. This was a great opportunity to educate students about Civil Engineering.

Looking forward to the next academic year, the Omaha chapter will be hosting the Midwest Regional Conclave on March 10-11, 2017, and will be inviting members from 15 other chapters across the Midwest region to the Peter Kiewit Institute.



Chi Epsilon students on the Omaha campus picked up trash from Papillion Creek and posted "No Dumping Stickers" around campus for Keep Omaha Beautiful.



EWB students and advisors in Madagascar.

Engineers Without Borders

In 2015, the Engineers Without Borders chapter was recognized with several awards, including the 2016 Premiere Chapter Award for the Midwest Region by EWB-USA and the UNL Office of Student Involvement Award for Outstanding Commitment to Recruitment for the freshman program.

On July 11 – August 3, 2016, the water and solar teams traveled to Madagascar. The Solar Team continues their work installing solar powered lights at primary schools in their partner community of Kianjavato. This year, the team is installing lights in the village of Ambolotara. Meanwhile, the water team is continuing their assessment of the community's gravity fed tap system and is examining several improvement projects to restore the utility to its

Student Organizations, cont.

full working order. The chapter has also been busy making an impact at home in Nebraska. In October of 2015, they had the privilege of hosting the EWB-USA Midwest regional conference, one of five regional conferences happening across the country. This was a great opportunity to connect with other chapters in the Midwest area, get caught up with the latest developments from EWB-USA headquarters, and learn valuable skills to apply to their projects. In addition, the Freshman Leadership Committee is entering its second year and continues to organize local service projects in Lincoln and in Omaha.

Institute for Transportation Engineers

The objectives of the University of Nebraska-Lincoln Institute for Transportation Engineers' Student Chapter includes promotion and advancement of the transportation and traffic engineering profession. They foster close association of students with the profession, and acquaint students with topics of interest in transportation engineering.

The Chapter arranged a presentation from Felsburg Holt & Ullevig in October of 2015 about the proposed design of a new roundabout in southern Lincoln, which was attended by 50 students. In March of 2016, the Chapter co-hosted a "meet-and-greet" event for undergraduate students with the UNL Nebraska Transportation Center and the Lincoln-Omaha-Council Bluffs Association of Transportation Engineers (LOCATE). Students were given the opportunity to interact with transportation industry professionals. This event involved professionals from 11 local and regional transportation companies and agencies communicating with UNL students interested in transportation engineering. In April 2016, the Chapter arranged a "question-and-answer" session by inviting three young professionals in the transportation field to provide UNL students opportunities to ask career-related questions.

American Society of Civil Engineers

The University of Nebraska-Lincoln American Society of Civil Engineers (ASCE) student chapters of Omaha and Lincoln had wonderful years. Both chapters received a 2016 letter of honorable mention for their outstanding activities in 2015, an achievement that places them in the top third of all ASCE student organizations. The student chapters' work included hosting numerous guest speakers to help educate student members, arranging social activities for the civil engineering students, and participating in the ASCE Workshop for Student Chapter Leaders (WSCL) and the Mid-continent regional conference.

This year, the students attended the Mid-Continent Regional Conference in Rolla, Missouri, competing in the steel bridge, concrete canoe, and concrete bowling competitions. The Lincoln team finished second in concrete bowling, where each team manufactures their own bowling balls out of concrete and they use them to roll five frames of a bowling game. ASCE is looking forward to another successful year in 2016.



ASCE Concrete Canoe Team



ASCE students participating in the concrete bowling competition. The Lincoln team team finished second.



ASCE students participating in the steel bridge competition.

UNL Students Noticing Civil Engineers (It's About Time!)

The following article was originally published in the DailyER, a satire of the Daily Nebraskan student newspaper at the University of Nebraska-Lincoln. We thought you might enjoy that the UNL newspaper is noticing all of the Civil Engineering students parading around in their t-shirts.

Humor is the finest form of flattery!

Student wearing department t-shirt just that much better than you

by Joe Burrows, published November 21, 2015

The world is a cruel and unfair place, and not everyone is cut from the same stone. Sophomore civil engineering major John Rafert is more than happy to drive that point home.

Seen yesterday wearing his College of Engineering T-shirt, Rafert was sending a clear message to any student that ran into him that day.

"I just wanted people to know that I'm in a better position than them," Rafert explained. "It's a prestige thing, really."

Rafert went on to say that he believes that the university should assign a hierarchy to majors.

"Obviously civil engineering is at the top of the food chain around here," Rafert said. "It only makes sense that we should enjoy the privileges that come along with our status."

Rafert noted that almost every sidewalk on campus has enough room to give civil engineers their own walking lane, among other possible concessions to engineering students. Although improvements would cost the university a small fortune, Rafert said the costs would even out over time.

"Face facts, some majors are just not worth catering to," Rafert said. "The arts don't drive this country, science does. It's time for Harv and the boys to nut up and put their money where it counts."

When asked about his roommate's strange behavior, English major Eric Brandow didn't seem fazed.

"Yeah, he gets a little weird every time he wears that shirt," Brandow stated. "He is usually really cool."

However, Rafert doesn't see his actions as strange.

"I just think that we would all benefit from some kind of caste system," Rafert said. "As a future civil engineer, it is only right to put our noble profession at the top."

"At the end of the day, I just like people to know that I have a leg up on them for my future," Rafert concluded. "Even though the university won't make the proper concessions, the shirt helps me project a little power."

At press time, Rafert was seen extolling the virtues of an engineering degree to a group of hapless freshmen.



AWWA/WEF student chapter reaches out to next generation of engineers

Finding solutions to the world's problems is one of the duties of engineers.

But finding the next generation of problem solvers, especially those who will tackle the job of protecting the earth and its environment, is a task that a group of UNL engineering students doesn't take lightly.



Rachel Levine, vice president of UNL's AWWA/WEF student chapter and a graduate student in civil engineering, shows middle school students an experiment during the Global Day of the Engineer, Feb. 24 at the Nebraska Union.

By demonstrating to nearly 60 middle school-age students easy and new ways that water is being used for the betterment of people and the planet, the UNL student chapter of American Water Works Association/Water Environment Foundation (AWWA/WEF) helped make an impact during the Global Day of the Engineer. The event at the Nebraska Union was part of the annual Engineering Week.

"We tried to focus on things you can't really find in a textbook," said Rami Zaira, AWWA/WEF president and a civil engineering graduate student. "These activities are important to young people and those young people are the generation that are going to be our future engineers, lawyers and politicians. There has to be outreach, especially to the young generation as a global effort, and we feel it's our duty to help them understand and keep them interested."

AWWA/WEF members showed the children a series of water experiments, ranging from treating wastewater to make it usable again, turning contaminated water into potable water and using water as a fuel source for a car.

Rachel Levine, AWWA/WEF vice president and a civil engineering graduate student, said the levels of interest, energy and knowledge from the young students was impressive.

"Even if they find that sort of thing in a textbook, it's one thing to read about it but it's another to see it happen before your eyes in a quick, easy-to-understand way. That helps connect them to those issues at a deeper level," Levine said.

"They were really interested, and you could tell that they were energized coming in. And their questions were well-thought-out, even high school- or college-level questions."

Zaira, who grew up in the Middle East without easy access to safe water, said preparing young people for the future and giving them ideas about how to keep the environment clean is of paramount importance.

"We are blessed here in the U.S. to have all these resources, but we must keep it as clean as we have it now," Zaira said.

"A lot of people, especially here in Nebraska, are exposed to the environment because they grow up on farms and they deal with water, soil, animals and waste. If we show them environmentally friendly processes that they can use and get the job done just as well and, in many cases, much cheaper than with existing technology, they can have that in mind for the future and that will only help protect the environment."

Levine, who earned a bachelor's degree in environmental engineering from Purdue University, said there were other good reasons to reach out to the young students.

"I didn't get much serious exposure to environmental problems until high school, when I was 15 or 16. I was already past that age gap when I started to take in all of that. In America, that's pretty common. We're kind of insulated from all that," said Levine, who has a bachelor's degree in environmental and ecological engineering.

"But it's also an issue of getting young women involved as well, especially at a younger age. I had that sort of influence when I was that age, and that's what drove me to be an engineer. Not a lot of young girls have that. When you get into high school, a lot of times it's already too late."

Midwest Roadside Safety concrete barrier test a smashing success



A shot from a video camera mounted on a crane shows an 80,000-pound tractor-trailer colliding with a concrete barrier during a test April 13 at the Midwest Roadside Safety Facility.



A head-on view of the collision.

UNL's Midwest Roadside Safety Facility spent nearly seven months setting up a test of a concrete roadside barrier at the Lincoln Air Park testing facility.

In a matter of seconds on a windy afternoon, it was over. But it's possible the lasting impact of the April 13 test will be felt for years to come.

MwRSF, in a collaboration with Manitoba Infrastructure and Transportation, had designed a 49-inch, single-slope concrete roadside barrier to help lessen the damage to vehicles and passengers in crashes.

To test the barrier, an 80,000-pound tractor trailer was placed on steel cables and pulled by two pickup trucks until it reached an optimum speed of 50 miles per hour. Then, it was released and guided along a path until

it collided at a 15-degree angle with the concrete barrier and had its momentum stopped by a remote-controlled braking system.

With a crowd of interested spectators – including Nebraska Gov. Pete Ricketts and officials from both the Nebraska Department of Roads and Manitoba Infrastructure and Transportation – inspecting the aftermath, MwRSF director Ron Faller declared the test a smashing success.

Jennifer Schmidt, research assistant professor at MwRSF affiliated with the Department of Civil Engineering, was also excited about the early results.

Despite a few small cracks in the concrete barrier, there was little damage to the barrier structure. A steel plate designed by the MwRSF team to span the gap between bridge sections not only stayed in place but sustained only a few marks

from the truck's tires and lugnuts.

The truck's engine was destroyed by the impact with the barrier, but the passenger cab remained intact. Schmidt said she was especially pleased that the entire vehicle remained upright throughout the test, especially with the wind gusting to nearly 35 miles per hour.

"That was great. That was awesome to see," Schmidt said. "We expected, maybe, a little more damage, but the truck remained upright after the impact, which doesn't even need to happen. As long as it doesn't get behind there (the barrier) that's great. With the very little damage we saw, that was very awesome."

Because of this successful test, Schmidt said highways in the U.S. and Canada could soon have this barrier, which was modified from a California Department of Transportation design.

Schmidt said officials from Manitoba will consider whether to install the barriers on highways in that Canadian province and the MwRSF will submit results from this test and await approval for the barrier from the U.S. Federal Highway Administration. That approval could lead to American states choosing to use these barriers and receive federal reimbursement of some construction costs.

"Manitoba wants this to be their standard barrier, and they seem very open to having our states use it as well," Schmidt said.

EVENTS & ACCOLADES

Welcome Back BBQ

ASCE hosted a welcome back barbeque on August 1st at the Peter Kiewit Institute in Omaha.



Student Recognition



▼ **BELOW:** Several Civil Engineering graduate students received recognition at the College of Engineering's annual Graduate Student Awards Ceremony in May.

▲ **ABOVE:** Each fall semester, the department hosts a reception for scholarship recipients and fall graduates. This event is held at the Strategic Air and Space Museum in Ashland, NE, and students who attend are recognized individually with their accomplishments while in school and their future plans.



WE WANT TO HEAR FROM YOU!

RECOMMEND FUTURE ENGINEERS

Do you have children (or know of students) in high school who are (or should be) considering engineering as a career?

If so, we'd love to contact them and let them know about the opportunities at UNL and our Civil Engineering degree programs in Lincoln and Omaha.

Please use this link for referral information:

engineering.unl.edu/request-engineering-information/

ALUMNI UPDATES

We encourage you to keep in touch and let us know what you are doing in your careers, community, hobbies, etc.!

We are always seeking alumni stories for the department and college, as well as to share with and to inspire our students.

Alumni Update form:

engineering.unl.edu/alumni-updates/

Support the Department of Civil Engineering

The Civil Engineering Department is grateful for the financial support of alumni, corporations, foundations and friends to help enhance our programs, facilities, and technology to benefit our students.

In the past year, \$25,000-plus in scholarships were awarded to more than 20 students, thanks to donations from alumni and friends. These funds help us attract and retain bright, active students who are eager to earn a degree from our program.

Please consider supporting the Civil Engineering Department in any of the following areas: student support, graduate fellowships, or faculty support.

For more information or to donate, go to the University of Nebraska Foundation:

nufoundation.org/civilengineering

UNL does not discriminate based upon any protected status. Please see go.unl.edu/nondiscrimination.

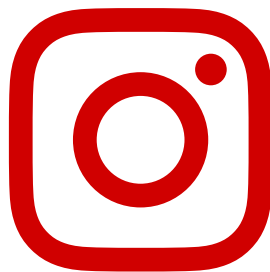
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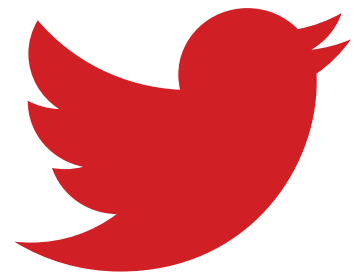
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