IOWA STATE UNIVERSITY Department of Civil, Construction, and Environmental Engineering

Spring 2014

STUDENT ORGANIZATION NEWSLETTER



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Civil engineering senior talks internship prep

Civil engineering senior Greg Markway knows a thing or two about the importance and preparation that go into an internship. Markway, who graduated at the end of the Fall 2013 semester, interned for the Iowa Department of Transportation and Adjustable Forms Concrete Construction (Chicago, Ill.).

The starting point to these experiences lies in "finding what you are really passionate about. It might take a little time, and it may require you to even switch majors, but it is important to keep trying until you find what it is you are truly passionate about," Markway said.

One way to help find this, as well as increase your skills outside of your major, is to take as many electives as you can over your four years, Markway said.

It is also important to take advantage of the resume building and interview workshops, as well as the Iowa State Engineering Career Fairs. "When it comes time for the career fairs,

don't be afraid to walk right up to employers and show them how passionate you really are," Markway said. "Remember passion leads to a great attitude, and great attitude to employers stands out above any resume."

Markway believes that the two best ways to prepare for an interview are through the Career Services interview workshops and practicing from an interview questions list. "It never really occurred to me that I could be interviewed by someone outside of the engineering department. The interview workshops helped me prepare for that."

On what not to do during an interview, Greg specifically stated that many people go into an interview with an impressive resume, GPA, and skill set, which is fine. However, the fundamental flaw is that they come off as arrogant to the interviewer. "In the end, remember that there is more than just having an impressive resume, your direct interaction during the interview will say much more about you in the end."

Graduate students host CCEE research competition

On Dec. 4, 2013, the Department of Civil, Construction, and Environmental Engineering (CCEE) held its third annual Graduate Research Showcase and Poster Competition. Approximately 150 people attended the event, held on the second floor of Town Engineering Building. Students of the CCEE Graduate Student Council prepared and hosted the free showcase and competition.

The judges for the night were CCEE Professors Doug Gransberg, Shashi Nambisan, Jim Alleman, Kejin Wang, Associate Professor Jay Shen, as well as two alumni: Casey Faber (BSCE'08) and Alekhya Kondalamahanthy (MSCE'13). Faculty and alumni also get involved in judging presentation skills and research content.

Thirty presenters displayed many types of high-impact research. For example, Mohammad Shaheed, a doctoral student in transportation engineering, presented research on the identification of winter crash hotspots using empirical data. Robert Peggar, a master's student in structural engineering, presented about precast concrete structures and how they react to seismic activity.



At the end of the night, Bin Tong won with his poster, "Seismic Deformation Evaluation for Improved Caisson Quay Walls." William Cord earned second place with his poster, "Prevention of Ice Formation on Paved Surface." Shifan Wu was awarded third place and People's Choice with his poster, "Mitigation of Liquefaction Hazards Using Microbial Geotechnologies." Wu is the first researcher to place in the competition and receive the People's Choice Award.



Greg Markway



Student team builds 29-foot cardboard LEGO man for charity

On Nov. 16, 2013, civil engineering senior Ryan Francois teamed with other Iowa State engineering students to construct a 29-foot LEGO man out of cardboard.

The giant LEGO man was built and slept in at Reggie's Sleepout, an annual event at the Drake (University) Stadium, where hundreds camped to raise awareness and funding for homeless youth in central Iowa. Francois's team, "The Brickheads," raised over \$6,500 for the Iowa Homeless Youth Centers with its project. Made entirely out of cardboard, Francois and his team constructed the LEGO man in a garage in Granger, Iowa, and transported it to Drake Stadium using a convoy of several semi-truck flatbeds and trailers.

Francois, who oversaw the construction of the 200 individual pieces and logistics of the structure said, "This is going to be the hardest part for us. There is a lot that could go wrong in that distance." Luckily, Francois is no stranger to this environment. In fact, he first started volunteering with Reggie's Sleepout in 2006 when he was still in high school. In 2009, as seniors at Johnston High School in Johnston, Iowa, Francois and his group of friends constructed a replica of the Iowa State Capitol also made entirely out of cardboard. That year, the team raised \$14,000 for homeless youth in Iowa. Even though their efforts were strictly volunteer, Francois said that this year, "We wanted to push what we had done in the past, and really see what we could do."

Students searched for their own cardboard primarily from old appliance boxes and cardboard tubes that carpet typically ships in. The entire structure was held together by hundreds of dollars worth of duct tape and zip ties, all of which were donated by local businesses. Even though a cardboard structure may not seem that stable, there was actually enough room for about 20 people to sleep within a four-level area. The team, along with others, spent the night in the final structure when assembled. "We all take it for granted having a place to sleep in the colder part of the year, but sometimes we forget that many people are outside with nowhere to go," Francois said.

Francois said he has learned so much from this experience, including logistics, management, design and working in an accelerated environment. He credits some of the skills necessary to work on the project to his Iowa State engineering courses. As team captain, he applied his technical and communication skills to orchestrate a great cause.



Watch a video of how students built a 29-foot cardboard LEGO man! <u>http://vimeo.com/80046077</u>

Students promote collaboration, innovation at Emerging Creatives Conference

Iowa State University civil engineering senior Ryan Francois, as well as construction engineering seniors Jace Christensen and Michael Donlin, attended the Emerging Creatives Student Conference Jan. 30-Feb. 1. The conference was held at Stanford University and was sponsored by the Alliance for the Arts in Research Universities (a²ru).

About 110 students from 30 U.S. research universities were selected to attend. Twelve Iowa State students attended with backgrounds in human sciences, design and engineering. The event's goal was to allow interdisciplinary student



From left to right: Jace Christensen, Ryan Francois, and Michael Donlin.

collaboration with an interest in crossing creative boundaries.

When asked what the most challenging part of the conference was, Francois replied, "It was challenging working with other majors and backgrounds, because each major had its own method of approaching a problem much differently than ours as engineers." They also participated in various team-building exercises. Christensen participated in a group wallet building activity. He and teammates looked at current wallet designs then redesigned them with their own functions in mind. "It opened my eyes to the idea that as engineers, we are very concerned with problem solving, but we tend to forget about finding the problem in the first place. Sometimes one needs to go against the grain to make things better," Christensen said.

Donlin said that his favorite experience was the "d. school." He explained that it was not an actual school but "simply a place that focused on the collaboration of ideas." One could work with people from all backgrounds with the common goal of rapid prototyping ideas. Donlin said that while working in this creative environment, "working with the right people can sometimes allow the problem to solve itself."

The three engineering seniors said that the experience was "a wonderful chance to network and engage in collaborative projects with students from different disciplines who are trying to make the world a better place." Francois added that collaboration with other majors "allows for communication breakdown to occur less often over various departmental disciplines." Christensen added that "sometimes you only see what you are looking at, not what you are looking for – collaboration can help that problem."

AGC student group donates \$500+ in gifts to Ames family

A homeless, single-mom Ames family of five children received the Christmas of a lifetime. The Associated General Contractors Iowa State chapter donated more than \$500 in clothes and toys to them.

Construction engineering senior Alex Buscher led the project. Many students in the AGC group pitched in the following items: soccer ball, art sets, makeup kit, socks, coats, Iron Man action figure, Spiderman action figure, diapers and baby clothes.



Left: Maggie Holt, Matt Decker, Alex Buscher, Bob Olson, Joel Robinson, Zach Mitchell, Sean Heinz, Colin Shriver, and Drew Lensch.

"They were so shocked by the amount of gifts," said Sipele Quezada, homeless liaison for the Ames Community School District who connected AGC to the family. "I met with the oldest student after break, and she said they had an amazing Christmas."

Iowa State NECA places in top 3 at national Green Energy Challenge

Iowa State University construction engineering senior Alex Buscher led a team of five civil engineering and construction engineering students to a repeat top-3 finish Oct. 12, 2013, at the ELECTRI International Green Energy Challenge, held in Washington, D.C. The team, who call themselves Team Cyclone Energy, included civil engineering senior Kate Glowacki, construction engineering senior Joe Hahn, construction engineering junior Maggie Holt, and construction engineering senior Alex Toth. These students are part of the National Electrical Contractors Association (NECA) Iowa State chapter. Beth Hartmann, a lecturer of civil, construction and environmental engineering, advised the team. NECA teams from throughout the U.S. compete in the Green Energy Challenge.



Left to right: Lecturer Beth Hartmann (adviser), Kate Glowacki, Joe Hahn, Alex Buscher, Maggie Holt, Alex Toth, and Lecturer Jenny Baker (adviser).

The team developed a written proposal, which earned top score, that describes an energy solution plan for the Iowa State University Memorial Union Parking Ramp. They presented highlights of their proposal to a panel of six judges and placed third overall out of 19 collegiate teams. Team Cyclone Energy's presentation included an energy plan for the 46 year-old parking ramp. Each team member spent five to six hours per week on the project, using the knowledge they gained from classes such as CON E 353 (Electrical Systems in Buildings). "It was a great feeling once we finally arrived in D.C. – all of our hard work was paying off," Hartmann said. On the day of their presentation, in front of an audience of 300 people, the team members presented their 14-minute speech.

Iowa State placed behind runner-up Pennsylvania State University and winner University of Washington. Iowa State repeats its 2012 NECA/ELECTRI International Green Energy Challenge success. This shows the skill, motivation and passion of Iowa State, its students, and its faculty. "We have a lot of fun, it's a great learning experience, and we always get along with each other. I really am proud of how we did," Holt said. Buscher said, "I learned more about the industry than I ever could have imagined, we grew as a team, and I got the experience of a lifetime."

Iowa State construction engineering teams win in ASC region contest

Two teams of Iowa State University construction engineering students placed first in the 21st Annual Associated Schools of Construction (ASC) Region IV Student Competition, held Oct. 24-26, 2013, in Nebraska City, Neb. Six-person teams

were given 18 hours to develop comprehensive proposals for a mock request for proposals (RFP). Teams then gave a 20-minute presentation to a panel of industry judges. The competition was divided into four divisions – commercial, design-build, heavy civil, and residential – representing real-world engineering challenges in construction industries.

"Having only 18 hours to completely digest a project, then turn it into a winning proposal, is a pretty challenging task," said Drew Lensch, construction engineering senior and captain of the first place residential division team. Student teams had time to prepare references and templates before competition, which was "key to accomplishing everything you want on competition day," Lensch said.



First Place Team – Commercial Division.

Iowa State won the commercial and residential divisions. The heavy civil team placed second, and the design-build team placed third. Thirty-one teams representing 12 universities from Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota competed. Iowa State has placed first in the ASC Region IV competition 37 times since 1994. Larry Cormicle (BSConE'78, MSCE'10), construction engineering senior lecturer and Glenn H. DeStigter Scholar in Construction Engineering, construction engineering Professor Doug Gransberg, and Associate Professor David Jeong helped students prepare.

Earthquake Engineering Research Institute (EERI)



The Earthquake Engineering Research Institute Iowa State University student chapter (EERI) was very active during the Fall 2013 semester. EERI organized activities such as academic seminars as well as several educational outreach programs. For example, some of their programs included the Earthquake Engineering Day and the Science Bond Event.

For the Spring 2014 semester, EERI plans on advertising the group, building connections around the nation, educating middle school students about earthquake engineering through a series of education outreach programs, and inviting speakers from both academic and industry. EERI took part in Science and Technology Night for Fellows Elementary School on March 6. This event was for demonstration and activity geared to elementary school-age children. Also, the group featured Dr. Nathan Gould (EERI Friedman Family Visiting Professionals), who gave a presentation on issues related to concurrent blast and seismic design. The group also plans to participate in the 2014 Undergrad Seismic Design Competition in Tenth National Conference on Earthquake Engineering to be held in Anchorage, Alaska, July 21-25, 2014. **To get involved, contact EERI president Xiao Liang at xliang@iastate.edu**.

Design-Build Institute of America (DBIA)

The Design-Build Institute of America Student Chapter is an organization designed to expose students to the designbuild project delivery method and to build collaboration between design and engineering students. Architecture, civil engineering, and construction engineering students learn through direct jobsite tours, design-build projects, attending Iowa State chapter events, and from industry representatives that present their experiences with Design-Build at monthly meetings.

At the November 2013 meeting, DBIA-Iowa President Lee Marbach and Project Manager Brian Hedgren (both of Russell Construction) presented on the first design-build project funded through the State of Iowa. DBIA helps to keep students informed of current news in the local and regional construction industries through these exciting presentations.



In November, DBIA was fortunate to send two students to the DBIA National Conference and Expo in Las Vegas, Nev. Students were able to network with professionals from across the country and volunteer their time to help staff the event. **To get involved, contact DBIA president Neil Wysocki at nwysocki@iastate.edu**.

Society of Women Engineers (SWE)



The Society of Women Engineers (SWE) is a student organization designed to empower women in all engineering majors. There are many goals of SWE including creating a positive environment for Iowa State women in engineering, holding outreach events to excite and encourage younger generations about the opportunities engineering provides, and helping all members gain the ability to transition into the professional world smoothly. Being a member of SWE has many benefits including leadership experiences, great networking opportunities, and community involvement.

SWE provides many opportunities to its members and is an exceptional student organization to join in order to be a stronger, more professional, and well-rounded individual.

SWE has many large-scale events planned for the spring semester. One of our biggest events this semester is the senior sleepover. This event brings in 25-30 high school senior girls interested in engineering onto campus for a weekend to learn about all the different engineering majors and other opportunities Iowa State has available. The girls enjoy presentations from each major as well as socializing time at our dining facilities and State Gym. This event is a great opportunity for high school seniors and SWE members to network with other engineering students and to interact with fellow SWE members in a social setting.

SWE also holds general meetings every other week where free food is served. At general meetings, SWE has a sponsored company present about itself and its opportunities. These meetings serve the dual purpose of getting members involved in a student organization and facilitating casual discussions with professionals in engineering.

Another opportunity for SWE members is the Society of Women Engineers Annual Conference. This event is held during the fall semester, and this year was held in Baltimore, Md. The conference was a great success. Students were able to network with other students in SWE, develop professionally, and network with successful women engineers. Each year, this is one of the most anticipated events of the semester for those who attend. **To get involved, contact SWE president Cara Petrie at isuswepresident@gmail.com**.



Engineers Without Borders (EWB)

Engineers Without Borders (EWB) is quickly growing as an organization throughout Iowa State, as well as the U.S. The main focus of the club is to provide engineered solutions to countries around the world that fit in with the surrounding culture. This past semester we have reached out locally by collaborating with Camp Mitigwa in Woodward, Iowa. There, EWB works on converting a windmill into a wind powered water pump with the goal of teaching the attending Boy Scouts about engineering and the science, technology, engineering and mathematics disciplines. The project should last the duration of the semester and EWB are looking forward to continuing our relationships and projects with the camp.

In addition to the local projects, EWB is also launching its abroad program. The travel group will prepare to leave for Ghana during the semester. The travel and assessment trip will occur at the beginning of the summer, where the group will build rapport with the locals and determine what needs to be done. With that information, the entire EWB chapter will work together to engineer something that will better the lives of those abroad. **To get involved, contact EWB president Brenda Klutzke at bklutzke@iastate.edu**.



EWB at Camp Mitigwa in Woodward, Iowa.



American Society of Civil Engineers (ASCE)

The Fall 2013 semester for the American Society of Civil Engineers (ASCE) was very busy. The group had a broad range of speakers from companies: Caterpillar, Kimley Horn, Burns & McDonnell and Kiewit Power Engineers. Tailgates were the main social event in the fall, but others included a bag toss tournament, golf outing, AGC vs. ASCE competition, and BINGO. Outreach events included helping with Taking the Road Less Traveled, Middle School Day, and Story County TEAM Day.

A category called "special events" was added this year. The major special event was a tour of the new Agriculture and Biosystems Engineering Building under construction. This semester, ASCE has had a few speaker meetings, with more planned for future dates. The major social events planned are the Ping Pong Tournament, ASCE vs. AGC competition, and the ASCE vs. Forestry Club VEISHEA Tug-of-War. The Spring 2014 semester is packed with elementary school STEM Nights, where ASCE teaches kids about basic bridge design using gumdrops and toothpicks. ASCE also will attend Engineering Day at North Grand Mall in Ames.

The two subgroups of ASCE, Steel Bridge and Concrete Canoe, also are busy with their projects. After a fifth place showing at nationals, Steel Bridge was hard at work on a design for this year's competition. This semester the bridge is being fabricated, and the regional competition is in Platteville, Wisc., in March. Concrete Canoe is back after a year hiatus. That team's regional competition is held in Iowa City this year on April 25-26. **To get involved contact ASCE president Matt Moore at mmoorel1@iastate.edu**.

Greenlees donate to supply students strengths



Rich Greenlee (BSConE'66) and his wife, Carm (BSFamConsSci'65), recently donated \$1,500 to supply 100 strengths-building books to Iowa State University construction engineering students enrolled in CON E 122, Cornerstone Learning Community: Orientation to Professional Life.

The book, "StrengthsFinder 2.0" by Tom Rath, discusses 34 personal and professional traits that students can identify as their talents. The book encourages people to build upon their strengths, instead of fixing their shortcomings. "My wife and I want to help students become well-rounded in their community work beyond their technical skills," Rich Greenlee said.

Maggie Holt, construction engineering senior and peer mentor for the CON E 122 course this spring, read the book during a Program for Women in Science and Engineering (PWSE) seminar in Fall 2012. She took the strengths test: harmony is her greatest strength. "Identifying my greatest strength has helped me become more aware of other people's strengths working in a team," Holt said.

Holt also said that realizing greatest strengths helps students navigate the busy college path. "A student who understands what he or she is naturally good at can use that knowledge and apply it to his or her own learning, rather than relying on someone else's methods."



Rich and Carm Greenlee

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