

CEE News

FALL 2010

The U-M Geotechnical Program: Excellence from the Ground Up

“It’s a very exciting time for the **Geotechnical** group,” Professor Dimitrios Zekkos proudly states. This excitement is certainly palpable among the Geotechnical Engineering faculty: Adda Athanasopoulos-Zekkos, Roman Hryciw, Radoslaw Michalowski, Dimitrios Zekkos, and two emeritus faculty members, Donald Gray and Richard Woods. The program has had a marked growth in the past few years, due to several recent and upcoming changes. One of the largest changes for the group is the revamping of the lab facilities, including the addition of space and new equipment. In addition to these changes, the group’s outstanding new graduate course curriculum, field-oriented focus, networking skills, and general affability are what make it a very unique program.

The Geotech program follows a legacy of high-quality work. “This program has always had a great reputation,” says Zekkos. “Michigan is the place where soil dynamics was born. We’re continuing that tradition, which I think is very important in our program.” The group shares a fondness and gratitude for the work of the two emeritus professors. Zekkos explains, “We have two emeritus, Dick Woods and Don Gray,

(continued on page 3)

Inside This Issue:

Chair’s Letter	2
Research Highlights	3
Faculty Honors	12
Student News	15
Department News	22
CEEFA Events	25
Alumni Updates	26
Coming Events	26
In Memoriam	27



The geotechnical group operates a field vehicle for research and for development of new in-situ soil testing equipment and procedures. Students can augment classroom instruction and laboratory testing with advanced field studies.

Chair's Message



Dear CEE Alumni and Friends:

Change, change, change! We see it all around us: in our personal lives; at the University, in our country; and around the world. For those of us in academia, change is inevitable and a way of life. Students come and go, academic accreditation requirements adapt with the times, courses need constant updating, and research programs evolve with the problems

of the day. Change can be complicated and difficult to maneuver sometimes, but it is rarely dull!

In the Department of Civil and Environmental Engineering at the University of Michigan, change is upon us. Our department is growing in every way possible: student enrollments; research volume; faculty and staff numbers; awards and recognition among members of our department community; even our teaching quality is among the highest in the college. We are adding one new faculty member this fall (Professor SangHyun Lee in Construction Engineering and Management) and will have two more searches underway this year. Our alumni and friends association (CEEFA) has made significant changes to our membership model and board structure, as highlighted on the CEEFA pages inside this issue, making it easier for people to get involved with the department. The issue also highlights the achievements of our faculty and students (teaching entrepreneurship and financing sustainability; developing models to improve water management; and improving the design and performance of hollow structural steel beams). We have a special highlight of the significant changes underway in our Geotechnical Engineering program (cover page and article), reflected in a significant increase in many metrics (faculty size, student participation, research volume) and a renewed commitment to this important area in CEE. We are also proud to announce a new opportunity for

alumni to direct gifts to the department that allow us to honor and retain a world-class faculty. In this issue, we announce three new faculty awards that are outcomes of generous gifts provided by alumni.

This issue of CEE News also reflects a changed agenda for the magazine. Starting with this issue, we will produce this magazine once per year and mail it in the late summer to inform you about what happened in the past year and our plans for the coming school year. As a result, this issue is action packed and I hope you take time to sit down and browse through it. We will also increase our communication with alumni by starting an E-newsletter that is more frequent (at least three times per year). If you prefer to receive this magazine and the E-newsletter electronically, please contact us at cee-chair@umich.edu and we'll make sure you are on our list.

In closing, I wish you a pleasant year and, as always, please stop by to visit or call when you are in the area. If you want to become more engaged with the department, please let me or Jennifer Macks (CEEFA President; starrman@umich.edu) know. We have plenty of opportunities for alumni and friends to be involved with the department.

With warm regards,

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Research Highlights

The U-M Geotechnical Program: Excellence from the Ground Up



Adda
Athanasopoulos-
Zekkos



Roman
Hryciw



Radoslaw
Michalowski



Dimitrios
Zekkos

(...continued from cover)

and they are both very much involved in our group, and I think that's a great thing." In keeping with this tradition of excellent work, the program has grown markedly in recent years. "Everything is on an upward trajectory for our group," says Professor Hryciw. "Over the last two years, everything in our program has basically doubled in size."

Most notably, one of the biggest changes for the Geotech program is the lab facilities. With the help of University and private funding, the group recently made major additions to the F. E. Richart Soil Dynamics Lab by developing new sophisticated equipment to perform static and cyclic testing of soils and currently is proud to have very unique and comprehensive geotechnical testing facilities. Along with the development of new testing equipment, the group is developing a new Geoenvironmental lab space in the Environmental and Water Resources Engineering building, adjacent to G.G. Brown. The goal of this new lab space is to incorporate more environmental engineering studies into geotechnical research and support interdisciplinary research between environmental and geotechnical. This lab will facilitate one of Professor Zekkos' main research foci,

which is studying the long-term behavior of solid waste in landfills, and understanding and modeling solid waste behavior. The new Geo-Environmental Lab facility will allow the large-scale testing of waste materials. All these improvements will certainly be of great value to the program. Professor Athanasopoulos-Zekkos also has high hopes for the new lab space and equipment. "Research performed in the lab will be of higher quality and be more comprehensive," she says. "[This] will result in significant contributions to the geotechnical field."

One of the most unique aspects of our Geotech program is the strong emphasis on field work. Professor Hryciw explains, "[We have] very extensive in-house capabilities for performing tests in the field." One of Dr. Hryciw's current projects involves using imaging technology to determine both soil grain size and grain shape distributions. A device that he developed as part of a research project is a ground-penetrating cone equipped with a camera that provides accurate, in-situ data for a site without the need for many cumbersome and time-consuming tests. Professor Michalowski's own field-oriented work involves off-site monitoring of buried

pipelines to reduce or eliminate the need for invasive testing. "Current research focuses on the structural health monitoring and damage detection of pipelines subjected to permanent ground displacements," states Michalowski. With so much of the program's research consisting of field testing, there is a great amount of crossover between research and practical work. "I think our profession, because of the variability of soils, is uniquely positioned... nowhere else [are] research and practice so integrated," says Dr. Zekkos. Professor Athanasopoulos-Zekkos' research is also very field-oriented, as currently, she is focusing on the behavior and performance of earth levee systems that are used as flood protection. She conducted extensive field



View of the new Geoenvironmental laboratory that houses equipment for testing the properties of solid waste.

work in New Orleans to assess the levee failures after Hurricane Katrina and she is now working on high-performance material development and testing for cut-off walls for levees in seismic regions.

The program's growth in recent years is also due to its new graduate program and the group's networking and outreach skills.



Damage of a concrete pipeline joint incurred during a ground rupture test.

Dr. Athanasopoulos-Zekkos explains that over the past two years, “applications for our graduate program have significantly increased as has the size of our graduate student group and the number of undergraduates that we have attracted to Geotech.” Indeed, the group has recently established a very comprehensive graduate geotechnical course curriculum that covers the entire spectrum of geotechnics. A major focus of the group is to bridge the gap between research and practice. The Geotechnical Seminar Series, the group’s weekly guest-lecture series, is one of the ways the program achieves this bridging. “The intent is to integrate our work with practicing engineers,” explains Zekkos. The series is open to the public and

usually features researchers, practicing engineers and contractors. In addition to this seminar, the Geotech website <http://www.umich.edu/~geotech> is constantly updated with the latest news about the program. The group has also established a geotechnical e-mail list that is used to promote announcements for the seminar. One can easily subscribe to the list by visiting the “Industry Partnerships” section of the geotech website.

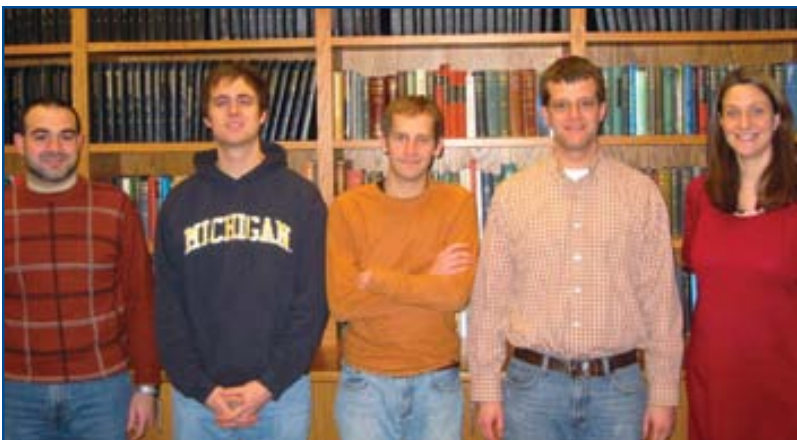
In this group of professors, each with a different geotechnical focus, there exists a “family-like atmosphere,” according to Zekkos. “We have kind of an optimum scheme, where we’re kind of big, but also very closely interwoven.” The graduate students also formed the University of Michigan Geo-Institute Graduate Student Organization that hosted several seminar speakers throughout the semester and participated in organizing various departmental student activities. Not only does the group share a close relationship amongst themselves, they each have a genuine passion for their work. The eagerness with which the group wanted to discuss their work and the excitement in their voices was

certainly not hard to miss. Even though Professors Athanasopoulos-Zekkos and Zekkos are relatively new to the department, the group dynamic is strong and supportive. “The two senior professors, Michalowski and Hryciw, have been extremely helpful to me by offering their advice and insight on various issues and have been great mentors,” says Athanasopoulos-Zekkos.

Whether it was Professor Michalowski beaming as he spoke of his research or Professor Hryciw praising the great tradition of the program, it is clear the Geotech program has an exciting future ahead of it. Professor Zekkos explains his hopes for students of the program, “[With] all these changes... we are looking forward to nurturing a thriving group of leaders in the geotechnical engineering field.” ■



View of the F. E. Richart laboratory.



Founding members of the G-I Graduate Student Chapter: (from left) Mustafa Saadi, secretary; Erik Ventura, treasurer; Adam Lobbstaal, president; David Saftner, vice-president; and Adda Athanasopoulos-Zekkos, faculty advisor.



The weekly geotechnical seminar series is an important part of the program and is always well attended. In this photo, attendees view a presentation by Dr. E. Medley using 3-D stereo-photography.

Professor Peter Adriaens: Financing Sustainability



Problem solving in any engineering discipline entails the analysis of constraints and boundary conditions. For example, physical and chemical limits, and time constraints are very familiar boundary conditions to most engineers. Two relatively new boundary conditions are life-cycle constraints and sustainability which play large roles in guiding and advancing the discipline. However, Professor **Peter Adriaens** believes a new constraint must also be taken into consideration if engineers want to advance the adoption of new and innovative concepts and technologies: the financial boundary condition.

Adriaens is a Professor in the Environmental and Water Resources Engineering program in the CEE department, Professor of Entrepreneurship in the Zell Lurie Institute for Entrepreneurial Studies in the Ross School of Business, and has a courtesy appointment in the School of Natural Resources and Environment. Within the Institute he serves on the advisory board of U-M's Wolverine Venture Fund and Frankel Commercialization Fund, working with MBA students on investments in CleanTech startups. Professionally, he is the current president of the Association of Environmental Engineering and Science Professors (AEESP), and serves as Director for Asia Operations for the Ann Arbor-based environmental engineering company, LimnoTech.

Professor Adriaens joined the CEE department in 1992, where he was hired based on his experience in site remediation at a time when Superfund remediation programs were supporting 'flask-to-field'

research endeavors across the U.S. The goal of these programs was to translate remediation processes and technologies developed in laboratory settings into real world applications, and to encourage professors and researchers to expand their experience beyond the lab and office.

But Adriaens found that while this type of research validated the lab technologies in the field, there was still something missing. "As an engineer, you tend to hope... that the professionals will pick up this technology [and] actually develop it into a business," he says. "That almost never happened – on average 2% of all technology developed became part of the remediation business portfolio." Adriaens yearned for more than just validation of technologies without a path to market. "I decided at one point... to figure out how the business fundamentals fit into all of this."

The engineering discipline, including Civil and Environmental Engineering, is rightfully focused on providing solutions constrained by technical boundary conditions first. Questions such as, 'Will the structure be physically feasible,' 'Do the materials fit prescribed failure limits,' and 'Can the sensor detect hazardous materials at required limits of detection,' or 'what would a zero-emissions building look like' are usually asked first. The question that usually is not addressed is, 'Will this be economically feasible, relative to alternative solutions, for the intended use or application.' In part, this is because, from most funding agencies' perspectives, this issue belongs in the 'technology transfer domain,' and finance or business development considerations are not seen as a priority for advancing fundamental research questions.

"Because of U.S. competitiveness, and the State's and Nation's economic woes, all we hear about in the national media and at

U-M is that we have to be more innovative," says Adriaens. "Yet, this discourse does not emphasize that innovation is a business concept that implies economic value creation." The drive for innovation shifts how we creatively solve problems beyond technical constraints, and he is working (through AEESP) with NSF to find a way to address this need. Adriaens indicates that a sign of the growing importance of economic and financial principles in engineering design is the National Academies' report on "Grand Challenges for Engineering," which mentions both as being critical in areas such as 'Solar Energy,' 'Clean Water,' and 'Urban Infrastructure.'

Adriaens considers himself a hybrid between engineering and business entrepreneurship. He says: "It's hard to find that kind of skill set in one person, because we are not trained that way."

To address whether an engineered solution is economically competitive or forms the kernel for a new business opportunity, engineers need both the technical skills and capabilities, and working knowledge of business fundamentals to help direct their research assumptions. Adriaens considers himself a hybrid between engineering and business entrepreneurship. He says: "It's hard to find that kind of skill set in one person, because we are not trained that way." Professor Adriaens' mission is to change this through his MS/MBA entrepreneurship courses, and as a member on the working group for COE's new Master's in Entrepreneurship program.

Adriaens continues to work toward incorporating investment finance and

economic constraints into engineering solutions, particularly related to mitigating risks from corporate water footprints. One of the application areas in his research is focused on what is called the “energy-water nexus.” As he explains, “Anything that deals with fossil fuel and utility-scale solar energy production, or biofuels, has a water component to it, and anything that deals with water management has a very strong energy component to it.” There is an intrinsic connection between energy and water usage.

One example of his work is with Duke Energy, a company that operates coal burning power plants, hydroelectric plants, and nuclear plants in the southeastern United States. Each one of their power plants requires water to operate safely and efficiently. Professor Adriaens worked to help Duke Energy make better water investment decisions. Because the southeastern U.S. experiences droughts, which impact the energy output from their plants, the investment in water

technologies is not just informed by technical requirements but also by needs to mitigate long term financial risk and revenue. “[Energy production] uses millions of gallons of water per day... and many stakeholders on the watershed need water, so the big question was, ‘What kind of technology should we invest in, and when does it make financial sense for us to do this?’” In order to solve this problem, they needed to examine which technology can mitigate the potential future impacts of climate and water availability uncertainty while preserving future revenue streams. In other words the cost of water did not drive the selection of these technologies, but rather the business value of the water did. That is, they needed to think about not only the upfront costs of investing in new technologies, but also the long-term payoff. This is where Adriaens and his team utilized financial models to determine the best time and means to invest in water conservation technology for the plant. What originally may have seemed like a bad investment

(when compared to the cost of water) suddenly makes sense when opportunity cost (the value of not having the resource available) is considered. “When you start talking to industry about investing in technology, you are no longer talking to the engineer, you are talking to the CFO.” You have to consider the financial constraints and value creation potential of sustainable solutions to communicate effectively across disciplines.

In addition to being well known at U-M, Adriaens’ expertise and affable personality make him well-connected and sought after outside of the university. Considered among the top experts in the environmental engineering field, he has been contacted numerous times regarding the current BP oil leak crisis in the Gulf of Mexico. His wide-ranging experience and activities keep him very busy, but despite his schedule Professor Adriaens takes great enjoyment in his work and research. Adriaens muses, “Research: it better be fun, otherwise you’re not going to do it!” ■



Adriaens gives CleanTech innovation lecture at Dalian University of Technology on occasion of receiving the City of Dalian Friendship Prize.

Professor Valeriy Ivanov: Modeling Nature in New Ways



“I am fascinated by patterns one sees in nature,” says **Dr. Valeriy Ivanov**. Young, but well-traveled and experienced, the Assistant Professor is a comparatively new member of the

Department of Civil and Environmental Engineering. It is his desire to understand natural processes and large-scale phenomena that has led Dr. Ivanov to begin exploring the complex interactions between hydrology and biology in very unique ways. His many projects deal primarily with hydrological models, and he hopes to expand and adapt existing models to more accurately represent the intricate processes that are involved in the land-surface water and energy cycles.

Still very early in his career, one of the disciplines that he is currently working in is ecohydrology, a relatively new science that combines aspects of hydrology and biology. For example, vegetation has a large impact on a watershed. Plants shade soil from solar energy and rainfall, and absorb water that is suspended in the soil near the surface. This absorbed water never reaches the groundwater or streams, so in order to accurately predict the paths and volume of water, it is imperative to know how the plants are operating and what factors affect the amount of water they recycle back into the atmosphere.

Another very important aspect of ecohydrology is the presence of aquatic animal life that plays a vital role in the balance of the ecosystem. There is currently no way to quantify the effect of water erosion and human interaction on the quality of an aquatic habitat. Dr. Ivanov is developing ways to use both new and

existing models to be able to understand how a habitat changes over the long term. A good example of this is a river estuary. Over the course of a few decades, rivers and streams deposit a great deal of sediment, which changes the shape and makeup of the habitat. This change might also be affected by human activities in the region. These are all very complicated systems, but his new models may lead to more sustainable methods for controlling erosion and protecting wildlife.

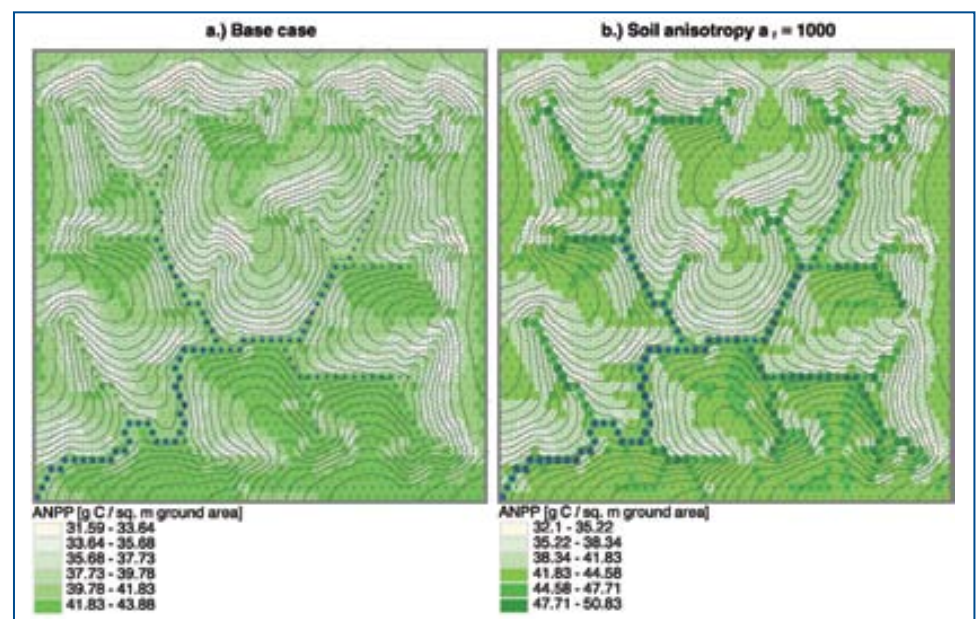
Traditionally, hydrologists have used simplified models like the kinematic wave formula to predict the behavior of a watershed system. This approach is useful because it keeps computation time to a minimum. However these methods usually only work for simple geometries and boundary conditions, so using simple models can ignore important interactions and factors and may lead to inaccurate results.

The alternative is to use what is called a fully dynamic model, which may involve a numerical approximation of the Navier-Stokes equations, or some other non-linear relationship. But this can lead to problems

because it takes so many calculations and so much input data that it can be very difficult to supply the model with enough information and expect that it run in a realistic time frame.

Dr. Ivanov addresses these problems by taking on some of the technical aspects behind how the hydrological models actually operate. In collaboration with Professor Nikolaos Katopodes, one of his projects tries to combine and enhance two existing models. The first is called the TIN-based Real Time Integrated Basin Simulator, or tRIBS. This model uses parameters such as land use, soil type, and topography. It then outputs runoff values that are then subjected to the second model called the Hydrodynamic Open Flow Model, or OFM. The results of the tRIBS-OFM model show how precipitation may lead to runoff or flooding in a given watershed area.

To improve accuracy, he is developing a Parsimonious Flow Model that is thrifty with computer resources while remaining faithful to the natural systems he wants to capture. Again, the intention is to work out some of the technical challenges



Simulated Vegetation-Water-Energy dynamics in a semi-arid area.

involved in doing complex modeling with ecohydrology. Here the goal is to simulate a seamless transition between flow conditions. For example, the water may begin to flow on something very simple like a parking lot, and then drain onto a rocky hill covered in shrubs. Ideally, the model should use simple methods to simulate the parking lot, and then also be able to change gears easily to compute a more complex system like the hill.

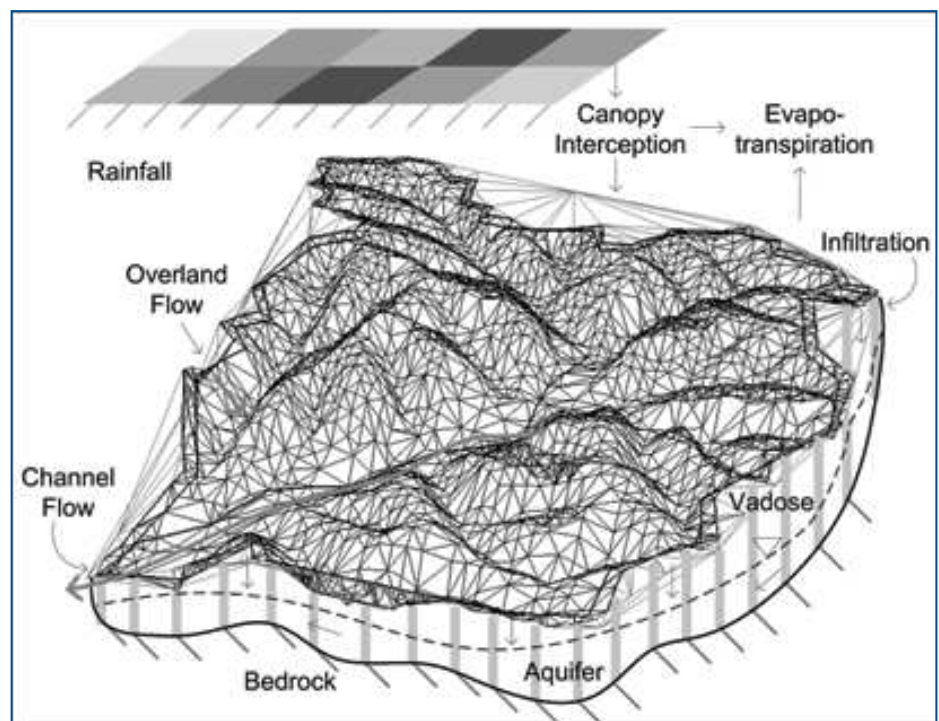
While the overall purpose of Dr. Ivanov's work is to provide a more comprehensive and scientific understanding of the natural world, there are many benefits of his models.

More comprehensive models can open doors to additional uses. For example, the physics-based nature of the flow models makes it possible to quantify the shear stress that is created by the streaming water. This information can be used to model erosion processes leading to changes in the topography. Of course, changes in the geology and shape of the area will then interact with the way that water flows as well. Historically, geomorphology and hydrology have been kept separate, but Dr. Ivanov feels it is important to consider the two disciplines together because they are so intrinsically related.

Professor Ivanov is also involved with ongoing collaborative research at the University of Michigan Biological Station (UMBS) in Northern Michigan. The work has been determining the effects of the disappearance of a tree species on the carbon exchange between the ground surface, plant and animal life, and the atmosphere. A number of aspen trees have been removed from the testing area through a process called girdling.

The removal of a large amount of forest canopy will have an unknown effect on the ecosystem as a whole. Dr. Ivanov wants to know how these changes will affect the hydrological system in the area. The change in the forest will change the amount of rain water that reaches the ground, and the amount that is absorbed and transpired by the trees. He would like to understand how the ground surface changes over time, because this tree removal represents a transformative stage of forest development in the North Eastern United States.

While the overall purpose of Dr. Ivanov's work is to provide a more comprehensive and scientific understanding of the natural world, there are many benefits of his models. "It's very important to show [these natural phenomena] numerically," he says, "because then you have a predictive capability in your hands." Engineers and practitioners might one day use these tools to make much more accurate predictions of water flows, leading to, for example, much more efficient water management techniques. ■



The tRIBS model emphasizes the dynamic relationships between each part of the watershed.

Structures Professor Jason McCormick Covers All the Bases



Even with one hand in a cast, Assistant Professor **Jason McCormick** is still eager to speak about his work. Not letting the softball injury slow him down, he stays busy with travel to the National

Student Steel Bridge Competition, a number of conferences, and plenty of summer research duties. Dr. McCormick is one of the more recent additions (January 2008) to the distinguished Structures faculty, but he has already become a strong presence both in the department and in the community. "I've always been involved in tutoring and I enjoy sharing my knowledge with others." He is actively involved with cutting-edge research, student groups, and he coordinates a University outreach program with local elementary schools.

His research has revolved mostly around earthquake engineering, and finding innovative solutions to some of the structural challenges associated with natural and man-made hazards. One of his current projects focuses on the use of hollow structural sections, also referred to as HSS members. These are essentially steel tubes that are produced in various standard shapes and sizes. Dr. McCormick's research group is considering new ways to use HSS members for steel seismic design. In the United States, the vast majority of steel beams are designed as wide flange sections, commonly called "I-beams." While HSS members have shown very good performance in a variety of structural applications, little work has been done on the use of HSS members as beams, specifically for seismic applications.

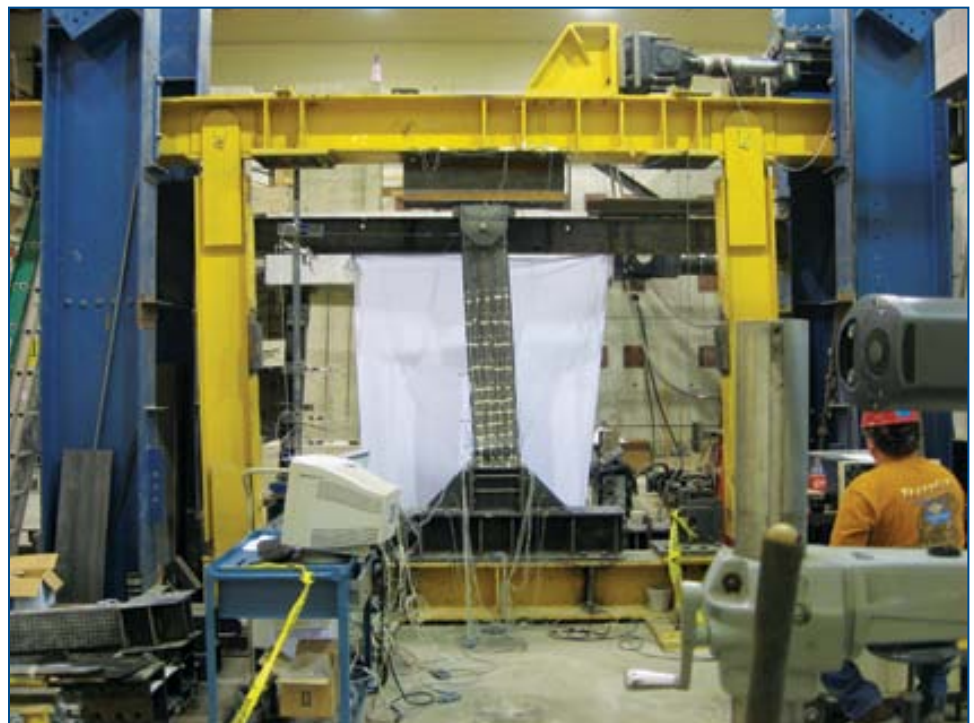
The research involves full-scale testing in the CEE Structural Engineering

Laboratory to assess the performance of HSS members during an earthquake. The testing apparatus uses a large hydraulic actuator to flex the beam repeatedly back and forth. This allows his group to measure the strength and stiffness of the beam as it becomes damaged. The general idea of modern seismic design is to strategically allow some members to incur damage in order to protect the more critical areas. The beams must be able to deform from their original shape and still provide adequate strength and stability even after the earthquake. Dr. McCormick is trying to determine which shapes and sizes of HSS beams will exhibit appropriate behavior after undergoing significant cyclic deformation. This knowledge will lead to more refined finite element models that can be used for actual seismic design.

The next step in this research path is to determine the best way to connect beam and column HSS members together for

use in seismic regions. With funding from the National Science Foundation and the American Institute of Steel Construction, he is examining new designs for these connections. The connections are critical in earthquake engineering, so it is important to design them carefully so that the entire structure will behave favorably.

One of Dr. McCormick's new projects will concentrate on bridge bearings. Many highway bridges are simply road platforms that are supported from below. The bearings are the crucial pieces that connect the platform to the supports and allow the transfer of loads from the roadway to the ground. Predictably, these bearings are very important to the overall safety of the bridge. The Illinois Department of Transportation is providing bearings from actual highway bridges that have been in service since the 1950's and 60's. This will give Dr. McCormick the opportunity to test how aging and corrosion affect the



The testing apparatus includes an array of infrared markers to track the position of each point on the HSS member.

bridge's seismic behavior. The goal of this research is to find sustainable strategies, like retrofitting, to rehabilitate the nation's decaying infrastructure.

Other work that he has been doing for some time is centered on finding ways to incorporate innovative materials into seismic design. Specifically, he looks at shape-memory alloys like nickel-titanium. A shape-memory alloy is a blend of metals that, under certain conditions, has a very special property. When this material is stretched, it can return to its original shape when the load is removed. Alloys like this have been used in the aerospace industry, the medical field, and even in everyday items such as eyeglass frames, but Dr. McCormick feels they can be considered for structural applications as well.

“My favorite part is actually the excitement the kids have in discussing engineering and the answers we get back when talking about bridges.”

The ability of structural components to revert to their original shape can provide a way to limit the amount of permanent deformation in a building after an earthquake. This also can dissipate additional energy to minimize damage. The intention is eventually to use the alloys in small quantities for specific components in a structure. Before they can be utilized in a building, however, his team is testing the materials to better understand how they behave under earthquake-type loads. With any manufacturing process, there is some variability in the exact properties of the product. They are trying to gather reliable statistics because in order to create a safe design procedure, it is necessary to take into account these variations.

Professor McCormick also keeps himself engaged with his students outside the classroom, and for the past two years, he has served as the faculty advisor to the University of Michigan Student Steel Bridge Team. In a year-long process, the team designs, fabricates, and constructs a steel bridge that they use in competitions with other schools. He tries to take a hands-off approach because he knows that it is important for the students to work through challenges in the design and construction. However, he does make himself available to answer questions and give advice when needed. He also facilitates logistical connections between the student group and the department. “It provides a really good opportunity to apply some of the theory and design principles that they learn, particularly from the steel design classes.”

On top of research and academics, Dr. McCormick commits to expanding the role of the University in the local communities. Since arriving in 2008, he has taken over coordinating a program that former CEE faculty member Professor Russell Green started. The Building Bridges Program teaches elementary school students about engineering, bridges, and the University. Each year, he recruits several University students to help mentor a second grade class at Bates Elementary School in Dexter, MI. This year, he has expanded the program also to include a first grade class at Thurston Elementary School in Ann Arbor, MI.

He begins the program by talking about what engineering is and what engineers do. It becomes an interactive conversation with the elementary school students and helps to expand their enthusiasm for math, science, and engineering. “My favorite part is actually the excitement the kids have in discussing engineering and the answers we get back when talking about bridges.” Typically, the students' current math topic is shapes and solids. He incorporates this by showing them

which ones can be used to design a bridge. Next, to illustrate different kinds of bridges and how they are made, he shows a short video geared towards children. The class is then divided into groups of two or three and each team is paired with a University student who teaches them to use the free West Point Bridge Program on laptop computers. The computer program is a kind of game in which the young students can design and test a bridge in a virtual environment. All the students get a chance to learn and have hands-on experience with the software.

In the future, Dr. McCormick is planning to expand the program and teach upper level elementary school students as well. He is developing a small-scale tangible model of a building. It will allow students to physically feel the effects of using various materials in buildings when they try to push it over. The Building Bridges Program is a good way for the University to reach out to the community and he feels that it is important to get a more diverse group of students interested in engineering at an early age.

Professor McCormick's slow-pitch softball career may be on hold for the time being, but his recovery won't hinder the valuable work that he does in the lab, in the classroom, and off campus. ■



A white coating is used to help visualize the deformations in the HSS members during testing.

New Faculty

Dynamic Project Management: Toward Intelligent and Prompt Decision Support for Successful Construction Management



Dr. SangHyun Lee will be joining Civil and Environmental Engineering's Construction Engineering Management program this fall.

Dr. Lee's career has taken him around the globe. He earned his Bachelor's degree in Architectural Engineering in his home country, South Korea, and later worked for an architectural engineering design firm. Although he enjoyed his work, Lee felt something was missing. "I found that the communication between design and construction was not happening. I felt that a bridge between design and construction was really needed." Seeing potential in information technology to close this gap, Dr. Lee began his graduate work at the Massachusetts Institute of Technology in 2000. The focus of Lee's work was formed around a system to support better decision-making processes in construction using information technology. "In my doctoral work at MIT," he explains, "I focused on planning issues to incorporate the

dynamics of errors and changes, which make construction very dynamic and uncertain." As he continued his studies, Dr. Lee increasingly felt that these dynamics could not be avoided, particularly in large-scale construction where improved on-site decision-making processes (i.e., intelligent and prompt project control) are necessary. He took his research focus with him to the University of Alberta, where he has worked as an assistant professor for the past three years developing a research program that will enable better decision-making in the construction field.

Due to the complex nature of construction projects, with people of different languages, cultures and disciplines working toward distinct goals, on-site decision-making can become very difficult. Since it is nearly impossible to perform useful and real-time experiments monitoring real-time changes at the actual construction site, computer models are necessary to see how multiple constraints interact with one another on the work site. Lee feels that current computer models fail to accurately account for other important issues such as environmental and safety performance when decisions are made. In addition, the reactions of individuals to the decisions have not been considered. For example, suppose there is a scheduled delay for a construction site. One way to ensure meeting the project deadline is to compensate by having personnel work overtime. Using the typical approach, overtime will just increase peoples' working hours and accelerate the schedule. However, many current models don't consider that the overtime worker would become less careful on safety procedures/

guidelines as well as less efficient due to fatigue as he or she worked more hours. This is where the simulations must be altered. "If you decide to remedy a certain situation in construction, you have to think about all the different constraints and how they will affect diverse construction performance in the long run. At the same time, you have to think about how these can affect peoples' behavior." In order to achieve this, Lee feels that real-time data must be available and abundant. This is where new technologies will help the simulations.

Lee is excited to come to Michigan for multiple reasons. "I want to contribute to the legacy and history that the U-M CEE program has," he says. In addition to the department's history, Lee looks forward to working with other faculty. "I see great collaboration opportunities." Joining a historic and renowned CEE department is not the only draw for Lee. Comparing the winter weather of frosty Alberta to Michigan's relatively balmy winter weather, Lee remarks, "[in Michigan] they apologized for the cold weather, but...it was very warm to me!"

Including environmental and safety performance as well as the human behavior element in computer simulations is just one of the ways Lee hopes to shift his research program and grow during his time at Michigan. He aims to be a very approachable professor and values interactions with students. "I really want to interact with the students...just come to my office and we can talk!" ■

Faculty Honors and Awards



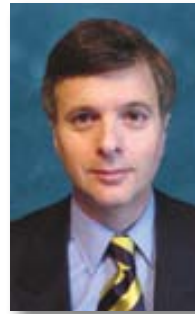
Adda Athanasopoulous-Zekkos

Elizabeth C. Crosby Research Award from ADVANCE



Sherif El-Tawil

Chief Editor for the Journal of Structural Engineering (JSE)



Nikolaos Katopodes

2010 Rackham Distinguished Faculty Achievement Award



Victor Li

Elected Fellow for the International Association of Fracture Mechanics for Concrete and Concrete Structures – In recognition of outstanding contributions to the IA-FraMCoS and to concrete science and technology, May, 2010

Will present a keynote lecture entitled: “Non-Brittle Concrete for Durable Infrastructure in Coastal Regions,” at the *International Conference on Future Concrete*, Qatar, November, 2010



Peter Adriaens

Adriaens, Peter and Faley, Timothy L. (2009), “Teaching Entrepreneurial Business Strategies in Global Markets: Comparison of Cleantech Venture Assessment in the US and China,” received the Best Paper Award at the *RoundTable for Entrepreneurship Education (REE) Asia 2009 Conference*, Hong Kong, October 21-23, 2009

Keynote lecture entitled: “Bridging the Divide: Entrepreneurship and Societal Value Creation from Biotechnology” at *European Commission-sponsored International Biotechnology Symposium* in Rimini, Italy

Adriaens and former post doctoral researcher, Raveender Vanella, were issued U.S. Patent 7,709,619 B2 (“DNAzymes and Sensors Incorporating the Same”) on May 4, 2010



Eugene Glysson, Emeritus

60 years of service to the University of Michigan chapter of Chi Epsilon



Christian Lastoskie

Keynote lecture entitled: “Elastic Layered Metal-Organic Framework Adsorbents for Carbon Capture,” at the *2010 Annual World Conference on Carbon*, Clemson, South Carolina, July 14, 2010

Elected Second Vice Chair of the Environmental Division of the American Institute of Chemical Engineers (AICE). He will serve as Second Vice Chair of the Environmental Division in 2010, First Vice Chair in 2011, and Chair in 2012



Vineet Kamat

FIATECH 2009 Celebration of Engineering and Technology Innovation (CETI) Award for Outstanding Early Career Researcher



Nancy Love

President-elect of Association of Environmental Engineering and Science Professors (AEESP)

Co-authored a textbook: *Biological Wastewater Treatment*, C.P.L. Grady Jr., Glen T. Daigger, N.G. Love and C. Filipe, Francis and Taylor Publishers, 3rd edition.



Jerome Lynch

2010 Rackham Faculty Recognition Award

Keynote lecture entitled: "Cyber-enabled Bridge Monitoring Systems," at the *Quantitative Nondestructive Evaluation 2010 Conference* (QNDE2010), July, 2010



Anna Michalak

Department of Civil and Environmental Engineering Merit Award

ASP Faculty Fellowship by the National Center for Atmospheric Research



Gustavo Parra-Montesinos

Walter L. Huber Research Prize from the American Society of Civil Engineers (ASCE) for research contributions on frame and wall structural systems that incorporate fiber-reinforced concrete and improve the safety and behavior of structures



James Wight

Co-authored a textbook: *Reinforced Concrete: Mechanics and Design*, James K. Wight and James G. MacGregor, Pearson/Prentice Hall, New Jersey, 2008, 5th edition.



Jason McCormick

American Institute of Steel Construction (AISC) Faculty Fellowship

Chi Epsilon Teaching Award for the Great Lakes District



Radoslaw Michalowski

Keynote lecture entitled: "Stress corrosion cracking and relaxation of deviatoric stress after dynamic compaction of sand," at the 37th *Solid Mechanics Conference* in Warsaw, Poland, Sept., 2010



Jeremy Semrau

2010 College of Engineering Service Excellence Award



Steven Wright

2010 Chi Epsilon Arthur N. L. Chiu Outstanding Faculty Advisor Award



Professor Radoslaw Michalowski received the 'Tribute Award' from the American Polish Engineering Association (APEA). The Award was presented to Prof. Michalowski at the Gold Award Banquet of the Engineering Society of Detroit in February 2010. Later in spring, Prof. Michalowski presented a dinner lecture to APEA members, entitled: "From Tilting Silos in North Dakota to the Leaning Tower of Pisa."

Dr. Paul Ostrowski (left), President of APEA, presents Professor Michalowski (right) with the Tribute Award.



Dimitrios Zekkos

2009-2010 Undergraduate Research Opportunities Program (UROP) Outstanding Research Mentorship Award, honorable mention

Department Announces New Faculty Awards

The Department of Civil and Environmental Engineering greatly appreciates the generosity of its alumni who have provided resources to support three new Faculty Awards that honor the achievements of our faculty. These awards were established through the fundraising efforts of the Department and College, and are designed to recognize and support junior to mid-career faculty members who have demonstrated outstanding achievements and promise in multiple dimensions of our mission at the University. The following faculty will receive the new awards, which are effective September 1, 2010 for 3 years each. The alumni who provided the gift to initiate the award are also highlighted.



The Frank and Brooke Transue CEE Faculty Scholar Award goes to **Dr. Anna Michalak**. Dr. Michalak is internationally recognized for her innovative work developing advanced geostatistical tools to improve understanding of environmental systems. One of her key research areas focuses on quantifying global emissions and sequestration of carbon dioxide by humans, plants, and oceans, and deriving how the

processes controlling these carbon “fluxes” affect atmospheric CO₂ levels and climate change. She is also well recognized for her work in water quality monitoring, and the application of massive datasets derived from satellite observations to the world’s more pressing environmental problems. In teaching, Dr. Michalak has developed three new courses within the department, and is a well recognized teacher and mentor to her students. Some of



her most recent honors include the University of Michigan Henry Russel award (2011), a National Center for Atmospheric Research ASP faculty fellowship (2010), the College of Engineering 1938E award (2009), a U.S. Presidential Early Career Award (2008), and the 2008 Association of Environmental Engineering and Science Professors (AEESP) Outstanding Educator Award. She is extremely active in professional service, and has an unusually high

level of visibility in her professional community as a leader in several nationally important activities.

Currently **Frank Transue** serves on the College of Engineering Alumni Society Board. However, his involvement with the College has stemmed back to his work with the structures program in CEE. Frank was honored in 2008 with the Civil and Environmental Engineering Alumni Merit Award. His wife, **Brooke**, is also a University of Michigan alumna and is very involved with both LSA and the College of Engineering. ■

The Anne Voshel and Gerald Nudo CEE Faculty Scholar Award goes to **Dr. Jerome Lynch**. Dr. Lynch is an internationally recognized researcher and leader in the rapidly growing discipline of structural health monitoring. His innovative



and entrepreneurial ideas have resulted in some of the first world-wide deployments of wireless sensors that detect structural behavior in a range of infrastructural systems, and in the development of novel data processing and feedback control strategies integrated with the sensors to make them wholly deployable monitoring systems. Dr. Lynch is also a gifted teacher and a valued counselor to students throughout the department. His teaching and mentoring of students has been widely recognized through receipt of multiple awards in the department (given by the students), the college and the University. Dr. Lynch’s commitment to service is unparalleled and he remains active at multiple levels within the department and university as well as on the international scene.

In 2009, **Anne Voshel** was honored with the 2009 Civil and Environmental Engineering Alumni Merit Award. She has assisted the ASCE student group with planning their annual trip to Chicago and bringing in Michigan Engineering alumni to meet with the students. She has also worked with the university’s MPowered program, a student entrepreneurial organization. Anne’s daughter, Whitney, has recently decided to attend Michigan in the College of Engineering this fall as a freshman. ■



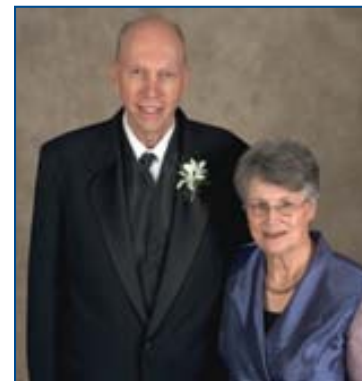
The Borchardt and Glysson Water Treatment Award recognizes a faculty member who has demonstrated teaching and/or research excellence in water and wastewater treatment design. The first recipient of this award is **Dr. Terese Olson**. Dr. Olson is an Associate Professor in the environmental and water resources program, and serves as undergraduate advisor in the department. Her teaching and research focus

on environmental chemistry and engineering as it pertains to water quality, treatment and disinfection. She is a respected and caring teacher who students routinely regard as being among our top instructors. Dr. Olson has taught a range of courses since joining the faculty at U-M from the University of California-Irvine

in 2000. Her current course offerings are Design of Environmental Engineering Systems (CEE 460) and Physicochemical Processes in Environmental Engineering (CEE 580). Dr. Olson's specific research focus is on reaction mechanisms of oxidation processes involved with disinfection and contaminant removal in drinking water, and on the surface chemistry of colloidal transport processes in environmental systems.

This award was named in honor Professors Borchardt and Glysson, two former CEE professors who have had a lasting and significant impact on the field of water and wastewater treatment and the students who were fortunate to learn from them. The award is

primarily funded through a gift provided by **Tom and Greta Newhof** and friends of Professors Borchardt and Glysson. Tom was the 2005 recipient of the Civil and Environmental Engineering Alumni Merit Award, and is currently serving on the college's 60th reunion committee. ■



Student News

Student Scholarships and Fellowships

Student scholarships and fellowships are due to the gracious gifts provided by our alumni and friends.

C. E. Bottum and R. Harris Fund
Chen Feng

Civil and Environmental Excellence Fellowship
Christopher Moline
Mark Poll
Nate Shoemaker

Civil and Environmental Engineering Friends Association
Derya Ayril

F. E. Richart, Jr. Fellowship Fund
Jieshi Fang

Frank J. Lemper Scholarship Fund in Civil Engineering
Nicolas Gutschow

H E Riggs Fellowship
Seunghun Ahn
Clinton Carlson
Chunxia Li

Jack A. Borchardt Fellowship
Andrew Colby

John L. Tishman Fellowship
Suyang Dong
Sanat Talmaki

Rackham Engineering Award
Devki Desai
Julie Fogarty
Angelica Perez de la Rosa
Sara Rimer
Lauren Stadler

Raymond C. Hurt Scholarship in Civil Engineering
Qianru Guo

Steele and Mildred Bailey Scholarship
Sean O'Connor

Winter 2010 CEE PhD Graduates

Adamantia Athanasopoulou	Youngjae Kang
Rita Awwad	Raymond Andrew Swartz
Andrew Henderson	Andrew Zimmerman

Summer 2010 CEE PhD Graduates

Chung-Chan Hung	Wen-Cheng Liao
Yongsu Jung	Suk Hwan Yoon

Winter 2010 CEE Masters Graduates

Manu Akula	Jeffrey Jackson
Derya Ayril	Danielle Lefevre
Clinton Carlson	Charles Liou
Ryan Chapin	Tabetha Martel
Qiang Dai	Amy Mikus
Halle Doenitz	Jenahvive Morgan
Suyang Dong	Sean O'Connor
Jieshi Fang	Curtis Rozelle
Stephanie Guisbert	Sanat Talmaki
Sutrisno Kurniawan	

Summer 2010 CEE Masters Graduates

Eric Dennis	Erin Trainor
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Student Honors and Awards

Our students, staff and faculty strive to have an impact with their work. Here we list just some of the ways their impact is recognized.



Tara Clancy (Advisor: Raskin)

2nd place at the *AWWA Annual Conference and Exposition* in Chicago, Illinois for best Young Professional poster and presentation. The citation for her poster is as follows:

Tara Clancy, Giridhar Upadhyaya, Pranab Ghosh, Jeff Jackson, Kim Hayes and Lutgarde Raskin, Biologically Active Carbon Reactors for the Removal of Arsenic and Uranium from Drinking Water, ACE10, American Water Works Association, Chicago, Illinois, June 20-24, 2010.



Pranab Ghosh



Giridhar Upadhyaya

Student Honors and Awards (...continued)



Jeff Bergman (Advisor: Lynch)
2010 National Science Foundation (NSF) East Asia and Pacific Summer Institutes Fellowship



Lauren Hickey
2010 College of Engineering Undergraduate Distinguished Achievement Award



Mark Poll (Advisor: Raskin)
2010 Michigan Water Environment Association (MWEA) John P. Hennessey Scholarship



Aaron Sakulich,
Post-Doctoral Researcher (Advisor: Li)
Robert P. Apkarian Memorial Scholarship Award



Sherri Cook (Advisor: Love)
Selected to the Graham Doctoral Fellows Program
2010 Michigan Water Environment Association (MWEA) Jack H. Wagner Scholarship



Monica Higgins
(Advisor: Olson)
2010 Walter J. Weber, Jr. Award in Environmental and Energy Sustainability



Derek Roberts
Winning entries in the International Programs in Engineering (IPE) 2009 Study/Work Abroad Photo and Video Contest



Adam Smith (Advisor: Raskin)
2010 Michigan Water Environment Association (MWEA) Butch C. Davanzo Scholarship



Jeremy Guest (Advisor: Love)
2010-2011 Rackham Predoctoral Fellowship



Dan Obenour
(Advisors: Michalak and Scavia)
Selected to receive a three-year EPA STAR fellowship



Mustafa Saadi (Advisor: Athanasopoulos-Zekkos)
Selected Phi Kappa Phi Honor Society inaugural Council of Students
2010 College of Engineering Graduate Distinguished Leadership Award
2010 College of Engineering Graduate Distinguished Achievement Award

Student Organizations

American Society of Civil Engineers (ASCE) Student Chapter

By *Evan Avery, President*

The new ASCE Board is hard at work planning events for the chapter this year. ASCE will kick off this September by repeating last year's popular Student vs. Faculty softball game and BBQ, giving the faculty a chance to regain their athletic reputations and tie the record at 1-1. The group will also continue to provide a variety of other activities to bring the students and faculty together, including the traditional speaker meetings, social nights, and pancake breakfast, in addition to some exciting new events currently in the works, including a tentative student-alumni golf outing. If you are interested in more information about the golf outing, please let us know via the contact information on this page.

The chapter is looking to expand the CEE Career Fair, which will be held on Friday, November 5th this year. We are also working to forge closer ties between our student chapter and the local professional chapter of ASCE as well as the University of Michigan CEE alumni group, CEEFA. We are hoping that these efforts will provide educational opportunities for chapter members and help the students to find internships and jobs that provide them with experience and opportunities for long-term career growth.

In addition to social activities and professional growth, ASCE members have several opportunities to participate in community service, most notably by leading the department's efforts in organizing the Detroit Area Pre-College Engineering Program (DAPCEP). The non-profit DAPCEP program was created in an effort to increase the number of

underrepresented youths in the fields of science, math, and technology and has partnered with Michigan Engineering to offer programs in a variety of engineering disciplines. Last spring's CEE program was called "Build it Bigger, Better, Stronger!" and was aimed at providing hands-on learning experiences for students interested in Civil and Environmental Engineering. For five consecutive Saturday mornings, 14 seventh and eighth-grade students traveled to campus to learn about the different facets of Civil Engineering from volunteer student instructors and groups. The students assisted in concrete mixing with the Michigan Concrete Canoe Team, performed a groundwater pollution experiment with GrEENPEAS, competed in a Popsicle stick bridge building competition, and raced the Michigan Steel Bridge Team in the assembly of their truss bridge among several other educational activities. ■

If you are interested in learning more about ASCE, recruiting at the career fair, viewing upcoming events, or donating either to the chapter in general or specifically for regional competition, please contact us by any of the following.

Website:

<http://www.umich.edu/societies/asce/>

Officer email:

asce-officers@umich.edu

Mailing address:

Attn: ASCE President/Treasurer
Department of Civil and
Environmental Engineering
2350 Hayward Street
2340 G.G. Brown
Ann Arbor, MI 48109-2125

Donation Information:

Donations for Regional Competition are tax deductible.

In order for the university to provide a gift receipt for these donations, donor contact information and a statement of the intent of the donation is required.

If donating by mail/check, please feel free to print and fill out the form available on our website. Check donations for the competition should be made out to the university with a note in the memo section (ASCE Regional Competition).

Check donations to the chapter should be made out to U-M ASCE. Our website also allows you to use your credit card to donate online by entering this information in the Michigan Online Giving link.

Steel Bridge and Concrete Canoe Regional Competition 2011

This coming spring U-M ASCE will be hosting the North Central Regional Concrete Canoe and Steel Bridge Competition. This competition involves approximately a dozen schools and several hundred participants and spectators. This year the three-day competition will be held Friday, April 1 through Sunday, April 3. It will involve oral presentations, canoe races, on-site bridge assembly and testing, and numerous other events. This is a huge task to plan and finance, and several student leaders are already hard at work to make sure we show all of our guests what Wolverines can do. ■

Chi Epsilon

By Chris Bove, President

The winter semester was full of achievements for **Chi Epsilon**. Fifteen pledges completed the steps necessary to become official members, which is the highest number of pledges in recent semesters. The pledges each completed volunteer work of their choice and assisted the organization with its bi-annual North Campus invasive species removal project.

The winter semester also included the most successful Fundamentals of Engineering Exam Review, where over 90 students were able to attend weekly review sessions given by University professors. Chi Epsilon hopes to continue attaining high attendance in the coming years to prepare as many students as possible for this important exam.

In March, three members represented the University at the Chi Epsilon National Conclave at the University of Alabama. The National Conclave is held every other spring and is a meeting place for representatives from the 128 active Chi Epsilon chapters across the nation. This year was very

special because, out of all 128 chapters, the University of Michigan's own Professor Steven Wright was awarded the *Arthur N.L. Chiu Outstanding Faculty Advisor Award*. In addition, University of Michigan Professor Emeritus Eugene Glysson, who served as Great Lakes District Councillor for the past 18 years, was awarded a Distinguished Service Award for his years at this post.

Chi Epsilon members were involved in several social activities, which included a bowling night and the second bi-annual CEE potluck. The potluck is open to CEE students and faculty. It also provides an opportunity for undeclared engineering students to learn about the department and an opportunity for faculty and students to interact outside of the classroom.

During the coming year, Chi Epsilon hopes to have another large pledge class and high attendance at the FE Review sessions. In addition, we hope to start a program where Chi Epsilon members can either tutor or hold a review session for a lower-level core CEE course.

To learn more about Chi Epsilon or about assisting our organization, please e-mail: xe-officers@umich.edu ■



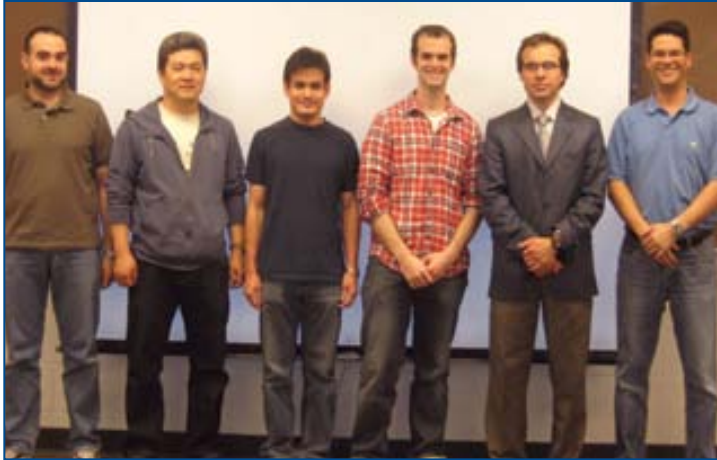
From left to right: Kimberly Lamote, Jeffrey Terenzi, Professor Steven Wright, Michelle Atto, and Emeritus Professor Eugene Glysson at the Chi Epsilon National Conclave banquet, University of Alabama.

Earthquake Engineering Research Institute (EERI) Student Chapter

*By Montbian Setkit,
Student Chapter President*

The University of Michigan **EERI** student chapter is aiming at encouraging the exchange of ideas and enriching the learning experience among various fields in earthquake-related studies. To achieve this goal, the student chapter hosts visiting scholars with a diverse range of backgrounds who present their work to students and faculty in our department. Last academic year, EERI was quite active, hosting seven distinguished speakers. These speakers included a member of EERI's Friedman Visiting Professional Program, Dr. Stephanie King. Dr. King is the Director of Risk Analysis at Weidlinger Associates, and gave a lecture entitled, "Infrastructure Risk Assessment for Cost-Effective Mitigation Decisions." Prof. Santiago Pujol from Purdue University reported the observations made during his visit to Chile. His presentation on "The 2010 Chile Earthquake - Preliminary Observations on Earthquake-Resistant Construction in Vina del Mar" provided us with more understanding of earthquake resistant construction practices in Chile. Other speakers included Prof. Robert Frosch (Purdue University), Prof. Jonathan Bray (UC-Berkeley), Prof. Youssef Hashash (University of Illinois), Prof. Susumu Kono (Kyoto University), and Prof. John Popovics (University of Illinois). This fall, we will continue this lecture series highlighting various earthquake engineering fields. We are excited about several more distinguished guests which we are planning to host in the coming months.

EERI collaborated with GrEENPEAS and Geo-Institute to organize the Third Annual Student Technical Symposium held on April 2, 2010. This symposium gave CEE students the opportunity to present



Professor Santiago Pujol Lecture. From left to right: Mustafa Saadi, Philip Park, Monthian Setkit, Matthew Fadden, Santiago Pujol, Professor Gustavo Parra-Montesinos.

and knowledge in earthquake-related fields. EERI is looking forward to having another year of success. If you have questions or would like to get involved with EERI please e-mail: eeri-officers@umich.edu ■

their research to other students and faculty. Attendance and participation for this year's event was very strong, making another successful event.

Also, EERI members actively participate in outreach programs at local elementary schools and give tours of the structures lab to young students encouraging careers in the civil and earthquake engineering fields.

This fall, EERI has three new officers and one returning officer. Our new officers are: Xiaohu Fan, Alex DaCosta, and Michael Kane. Monthian Setkit will be returning this year as the chapter president. A goal for this year, in addition to our established seminars, outreach and student symposium, is to bring many new members to our chapter. Students are encouraged to join EERI to gain experience

Graduate Environmental Engineering Network of Professionals, Educators and Students (GrEENPEAS)

By Andrew Colby, President

The mission of **GrEENPEAS** is to promote relationships between Environmental and Water Resources Engineering (EWRE) graduate students and EWRE faculty, staff and alumni, as well as with industry and academia. This is accomplished through regular social events for the EWRE community, professional networking events, and community service. The events planned for this year include the EWRE Welcome Picnic, Networking Night, Huron River RoundUp, the CEE Graduate Student Symposium, and the End-of-the-Year Picnic.

Networking Night is an event that is meant to provide CEE graduate students with professional networking opportunities and experience. The night begins with a presentation on the mechanisms and benefits of professional networking, followed by a reception in which students

have the opportunity to meet and mingle with civil and environmental engineering firms from the Ann Arbor area. The Huron River RoundUp is a service event organized by the Huron River Watershed Council (HRWC) every spring and fall, in which volunteers collect benthic microinvertebrates from local streams in order to gauge the health of the stream. GrEENPEAS also coordinates with EERI and the Geo-Institute to organize the CEE Graduate Student Technical Symposium, in which graduate students from the CEE department have an opportunity to present their research.

In addition to professional and service activities, GrEENPEAS organizes regular social events, including potlucks, happy hour, dinner, intramural teams, and bowling. The first Monday of every month, all members of the EWRE community are invited to meet in the EWRE lounge to eat and socialize with their friends and colleagues.

Members elected new officers at the end of last semester. The new officers are: Andrew Colby (President), Tara Clancy (Vice President), Julian Carpenter (Treasurer), and Tzu-Hsin Chiao (Secretary).

If you have questions or would like to get involved with GrEENPEAS please e-mail: greenpeas@umich.edu ■



GrEENPEAS Welcome Picnic. From left to right: Jill Ostrowski, Yoichi Shiga, Julian Carpenter, and Andrew Colby.

The Geo-Institute (G-I) Student Chapter

By Adam Lobbestael, President

The University of Michigan **Geo-Institute** (G-I) student chapter has had a successful first year since our formation at the beginning of the academic year. G-I is a specialty membership organization of the American Society of Civil Engineers focused on the geo-industry, with the purpose of enhancing the education and personal experience of students in the geotechnical engineering community at U-M.

Over the course of the winter semester the G-I hosted two speakers for the Geotechnical Seminar Series. The first speaker, Larry Jedele of Soil and Materials Engineers, Inc., gave a presentation entitled, "Geotechnical Lessons Learned and Solutions." We also hosted Steve Maranowski, CEO of Spartan Specialties LTD, with a presentation on micro-piling, jet grouting, and compaction grouting case histories.

The G-I also worked with the CEE Department, EERI, and GrEENPEAS to

jointly host the third annual CEE Technical Symposium. During this event, graduate students throughout the department were given the opportunity to present their research on a broad array of topics.

Our organization has also been working on its outreach efforts, which extend beyond the department. Several G-I members took part in the Detroit Area Pre-College Engineering Program (DAPCEP) this spring. DAPCEP is an outreach program offered to 7-9th grade inner-city Detroit students, aimed at raising awareness of engineering possibilities at a young age. The G-I coordinated one day of the event, in which students explored some of the possibilities in geotechnical engineering and built small-scale models of mechanically stabilized earth walls.

We are very pleased with the progress that our first year has brought and look forward to the upcoming year. G-I will soon begin planning events for the Geotechnical



Guest speaker Steve Maranowski, CEO of Spartan Specialties LTD, gives a presentation on micro-piling, jet grouting, and compaction grouting case histories.

Seminar series for the coming fall semester. We are also looking to form a student team to compete at the annual National GeoChallenge Competition for the coming year.

If you have any questions regarding our organization or are interested in supporting our efforts please contact the officers at gi-officers@umich.edu or visit www.umich.edu/~geotech for a link to our website. ■

Michigan Concrete Canoe Team (MCCT)

By Lexi Walter, Captain

The 2009-2010 season was a rebuilding year for the **Michigan Concrete Canoe Team** (MCCT); with a complete turnover in team leadership, it was a good time to overhaul any ineffective practices. The newly selected team leadership held coordination meetings prior to the start of classes, focusing on new member recruitment and education, improving research and testing methods, and producing a more aesthetically appealing and structurally sound canoe.

When classes started in September, returning team members began recruiting on campus – expanding their search outside of the College of Engineering. The efforts paid off: the team increased 45% in size and was comprised of diverse class standings (freshmen to grad students) and majors (some non-engineering, and many different engineering disciplines).



Materials research began with a focus on improving organization and methods, rather than purely on final results, although the team was interested in increasing the tensile strength (to prevent cracking), and designing a more environmentally friendly mix. Reports from previous successful teams were used as starting points, and once the team had an idea of what materials they'd like to test, many new team members volunteered to contact manufacturers for

recommendations and to request test samples.

The team performed two rounds of mix design testing: the first to decide between two fine aggregates, and the second to determine what proportion of aggregates would produce the optimum mix. The second round of testing also varied the amount of liquid latex admixture. A mix with increased latex showed the highest strength and plasticity and was ultimately chosen as the structural mix for the canoe. This mix had an average 7-day compressive strength of approximately 1600 psi.

To ensure cracking did not occur, a thick gunwale and center rib were incorporated into the hull design in addition to the highly elastic mix design.

Through this systematic research and testing, the team met the technical goals originally set forth: the canoe did not crack during transportation, display, or racing, and the percentages of recycled materials increased from 72% to 95% recycled aggregate, and 50% to 57% recycled cementitious material.

The team traveled to Western Michigan University, in Kalamazoo, Michigan for regional competition the last weekend in March. On race day, the water was frigid, there was a damp wind, and rain came and went, but the team remained excited and kept warm cheering their teammates on. While MCCT did not come out on top at regionals, all team members came back from competition proud of their hard work, and ready to get started on next year's canoe.

If you have any questions regarding our organization or are interested in supporting our efforts, please e-mail: asce-officers@umich.edu ■

Steel Bridge Team (SBT)

By Steve Wagner and Andy Schon, Co-Captains

Months of design, welding, and good old fashioned hard work from the 2009-2010 **Steel Bridge Team** led to the season finale at Purdue University in West Lafayette, Indiana for the National Student Steel Bridge Competition. We earned this invitation by placing 1st overall in the regional competition held at Western Michigan University, winning almost every judged category.

At the National Competition we placed 22nd overall out of 46 teams; an improvement of one place from last year's competition in Las Vegas. We believe that younger members of the team, having learned new skills throughout this year and seeing other teams' bridges at the two competitions, will be able to replicate this year's successes in future years.

If you are interested in assisting the team or making a financial contribution, please e-mail: asce-officers@umich.edu ■



Regional competition at Western Michigan. From left to right back row: Marc Ranke, Eric Brunning, Marc Wagner, Andrew Schon, Clinton Carlson, Steve Wagner, Jason Gargrave, CB Smith, and Kevin Fielder. Front row: Mark Curtice, Michelle Atto, Josh Kraus, Chris Bove, Beverly Smith, and Qi Wu.

Department News

Frank E. Richart, Jr. Distinguished Lecture

On April 15, the department hosted the 2010 Frank E. Richart, Jr. Distinguished Lecture. This year's honored lecturer was Dr. James O. Jirsa, Janet S. Cockrell Centennial Chair of Civil Engineering at the University of Texas – Austin. He presented a lecture entitled, "Experimental Research in Structural Engineering: National Priorities and a Study on the Use of CFRP Materials." Professor Jirsa is a member of the National Academy of Engineering and is internationally recognized for his expertise in the behavior and earthquake-resistant design of reinforced concrete structures.



Mrs. Betty Richart and distinguished lecturer, Dr. James Jirsa.

Hard Hats, T-Shirts and Polo Shirts Available

The American Society of Civil Engineers will be selling University of Michigan HARD HATS and T-SHIRTS again this fall! The hard hats are blue with the yellow winged design just like the Michigan football helmets, and are OSHA approved.



The cost for a hardhat is \$30 for faculty, staff, and alumni. Cash or **checks made payable to "ASCE - University of Michigan"** are accepted. Shipping costs are an additional \$10 if required in lieu of pick-up. Payment is required by October 31, 2011 so that the hardhats will be available before the holidays.

The T-shirt design will be selected in the fall through a design competition. The price will depend on the design chosen, but the cost is typically around \$10.

If you would like to order a hardhat, to be notified when t-shirts are available, or if you have any questions, please contact ASCE Treasurer, Lauren Hickey at lhickey@umich.edu

Want to show some maize and blue pride? Running low on University of Michigan apparel? Need something to wear for football Saturdays? **Check out the polo shirts from the Civil & Environmental Engineering Department!**

Embroidered with the CEE and Michigan Engineering logos, available in both MAIZE and BLUE. For more information, call (734) 764-8495.

Not picking up your shirt in person? Please be sure to include a mailing address. \$5 charge for Shipping & Handling. Make checks payable to "University of Michigan."



Modeled by
Tim Mekarau and
Tabetha Martel

Send to:

CEE Polo Shirts
University of Michigan
Dept of Civil & Environmental Engineering
2350 Hayward Street
2340 G.G. Brown
Ann Arbor, MI 48109-2125

Please circle your selection.

Gender	Size	Color	Quantity	Total \$
Women's	S M L XL	Maize Blue	\$30/ea x _____	= _____
Men's	S M L XL	Maize Blue	\$30/ea x _____	= _____
Women's	XXL	Maize Blue	\$35/ea x _____	= _____
Men's	XXL	Maize Blue	\$35/ea x _____	= _____
				S&H \$5 = _____
Grand Total Enclosed				= _____

President's Letter



Can you believe it is fall already? We have been busy this summer planning activities for the upcoming year, to give you several opportunities to come back to campus.

- Join us this fall for our *annual tailgate*, which coincides with homecoming weekend for the Michigan vs. Iowa game on October 16, 2010.
- We'll host our 2nd annual *wine tasting* on Saturday, February 12, 2011. Last year at the inaugural event, it was a great opportunity to interact with fellow alumni and faculty.
- Next spring, our *technical session* is scheduled for April 8, 2011. Planning topics are being discussed now and future information will be provided.
- Also on April 8, 2011 ASCE and CEEFA will once again team up to host a *banquet* where we will announce the 3rd annual CEEFA Faculty Member of the Year award.
- *ABET accreditation* is coming, and we're looking for alumni volunteers to support the department with assessment.

This past spring, we officially changed our by-laws and elected new officers. Under our new structure, all alumni and friends of the department are considered members. We are excited about the potential to incorporate additional activities and events to the CEEFA repertoire. Our new organizational chart is detailed below – please contact us if you are interested in participating on a specific committee.

In addition, CEEFA is committed to helping raise funds for the student ASCE chapter, who is hosting the ASCE student regional conference this spring. They will have several hundred participants from a dozen different universities on campus attending sessions and competing in the steel bridge and concrete canoe competitions. Costs for this conference are \$15,000 – we hope you will consider making a donation to ASCE for this worthy cause (see page 17 for donation information). We hope to see you on campus soon!

Jennifer Macks

Jennifer A. Macks, P.E., LEED AP
CEEFA President
starrman@umich.edu

Fall 2010 Board of Directors

President
Jennifer Macks

Vice President
Daniel Sinnott

Secretary
Lynley Weston

Directors

	Elected			Appointed	
Charley Ireland 2012	Chris Kipp 2012	Jim Fausone 2013	Anne Voshel 2013	John Hiltz 2013	Paul Freedman 2013

Committees

Ex-Officio

Nominations Daniel Sinnott	Social/Technical Chris Kipp	CEE Department Chair Nancy Love	CEE Development Liaison TJ Truskowski
Membership/Awards TBD	Fundraising/Strategic TBD	Past Presidents	Student Representative
ABET TBD	Student Activities Nan Perez		

Meet Your CEEFA Board



Walter (Wally) Alix, Past President

Wally Alix (BSCE '75) has been married for 33 years to his wife Cindy and has two children Roland and Amy. Walter has worked for Hubbell, Roth & Clark, Inc. for 30 years. HRC is a municipal engineering company that provides engineering services to Cities, townships, counties and the state for various projects. He is an avid outdoorsman and a gentleman farmer.



Chris Kipp, Director

Chris Kipp (BSCE '05) worked for the accounting and business advisory firm Plante & Moran, PLLC for the past four years. He is currently pursuing a Masters in Teaching from Oakland University. He enjoys being a part of CEEFA because it gives him the opportunity to give back and stay connected.



James G. Fausone, Director

James G. Fausone (BSE '76) is a founding partner at the law firm of Fausone Bohn, LLP in Northville, Michigan. He uses that background in litigation and business advice for locally owned companies. In 2007, he received the College's Distinguished Service Award. Jim is a past chairman of the College's Alumni Society Board and in 2005 funded the James G. and Carol Ann Fausone Endowed Scholarship Fund.



Jennifer (Starrman) Macks, President

Jennifer Macks (BSCE '94) is a Project Director with Barton Malow Company, in their Northern Virginia office. She oversees the construction of facilities for the healthcare, higher education, and federal markets. She has been involved with CEEFA since 2004, and is completing her two-year term as President. She is married and the mother of two daughters, ages 4 and 6.



Paul Freedman, Director

Paul Freedman, PE, BCEE, F. ASCE (BSE '72; MSCE '73) is co-founder and President of LimnoTech, a firm specializing in water issues for over 30 years throughout North America and around the globe. Mr. Freedman has taught, presented, and lectured extensively on water quality and sustainability issues involving over 250 presentations and papers. Mr. Freedman has participated and chaired numerous conferences,

professional task forces, committees, expert panels, and work groups affecting national and global policy issues. Mr. Freedman is currently the President of the Water Environment Federation.



Nan (Karczewski) Perez, Student Activities Chair

Nan Perez, P.E. LEED AP (BSCE '05; MEng '06) is living in Traverse City, Michigan with her husband Nicholas, and is currently employed as a Project Manager at Grand Traverse Construction. Having been active in ASCE and the Steel Bridge Team during her time at U-M, Nan naturally felt called to act as a liaison to the current student societies, and to assist in closing the gap between CEEFA and the current student body. She also

hopes to provide support to the current ASCE Executive Board as they take on the challenge of hosting the ASCE North Central Regional Conference in April 2011.



John J. Hiltz, Director

John Hiltz (BSCE '84) is the president of Orchard, Hiltz & McCliment, Inc., a 180-person architectural, engineering and planning firm with offices in Livonia, Columbus, Nashville and Houghton, Michigan. John is a member of the Livonia School District Improvement Team, a commissioner and past Chairman of the Plymouth Road Development Authority, and a director of both the American Council of Engineering

Companies/Michigan and the Livonia Community Foundation. John and his wife Debbie have three children: Danielle (U-M BSN '09), age 23; Christine, age 21; and Jack, age 17.



Dan Sinnott, Vice President

Dan Sinnott (BSCE '79; MSE '80) joined Turner Construction Company upon graduation and has held numerous domestic and international positions with the firm over the past 30 years. He currently manages Turner's West Michigan office. Dan and his wife Julie (Johnston) Sinnott, also a University of Michigan civil engineering graduate, live with their two children in Plymouth, Michigan.



R.C. (Charley) Ireland, Director

Charley Ireland (BSCE '82; MSCE '83; PhD Civil '97) is a consulting structural engineer and recently joined CTLGroup, Washington, DC office. Charley is especially proud of being an "all Michigan" man, earning three degrees from U-M. He is an avid swimmer and plans to swim the East arm of Grand Traverse Bay over Labor Day weekend. He has three adult sons who are his best friends and with whom he has completed mini-triathalons. Charley is a dog lover and has two golden retrievers. He also enjoys teaching and has taught engineering classes as an adjunct professor at U-M for the past few years.



Anne Voshel, Director

Anne Voshel (BSCE '77) heads a project management firm specializing in commercial office and institutional master planning, design and construction projects. In addition to holding a Bachelors degree from U-M, Anne holds a Masters in Business Administration from the University of Chicago. Anne is excited to have her daughter, Whitney Nudo, matriculating to the U-M College of Engineering in the fall 2010.



Lynley Weston, Secretary

Lynley Weston (BSCE '05) began work as a Field Engineer for Turner Construction Company after graduation from CEE and a one-month, whirlwind tour throughout Europe. She has since spent time in both Estimating and Business Development, and also serves as the Manager of Sustainable Construction for the Michigan Business Unit. She currently plays an active role in the Young Engineers Council—a professional development and volunteer group facilitated by the Engineering Society of Detroit—and in whatever spare time is left enjoys playing ice hockey and training for the Detroit International (1/2) Marathon.

CEEFA Events

Wine Tasting Event

In January, CEEFA held its first annual wine tasting and hors d'oeuvre reception at the Matthaei Botanical Gardens Conservatory. The event was well attended by members of the CEE community, alumni and friends. The lush foliage and flowers in the Conservatory created a lovely atmosphere for the event and provided a nice escape from Michigan's winter. The next wine tasting reception is scheduled for Saturday, February 12, 2011 beginning at 7:00 pm and will again be held at the Matthaei Botanical Gardens Conservatory.



From left to right: Dan Sinnott, Julie Sinnott, Gar Hoplamazian, and William Johnson.

Spring Technical Session and ASCE-CEEFA Banquet

On April 9, CEEFA held its Spring Technical Session on forensic civil and environmental topics which highlighted the profession's responsibility to maintaining the public's trust and welfare. Guest speakers included: Adda Athanasopoulos-Zekkos, Assistant Professor, CEE; Mary Darr, Senior Associate, Wiss, Janney, Elstner Associates, Inc.; Chris Smith, Corporate Insurance Manager and National CCIP Director, Turner Construction Company; and Greg Perruzzi, International Insurance Manager, Turner Construction Company.

Later in the evening, CEEFA and ASCE held a joint banquet at the Michigan Union. The banquet recognized the accomplishments of ASCE and the student teams for the academic year, and several awards were presented during the event. Emeritus Professor, E. Benjamin Wylie was the recipient of the 2010 CEEFA Faculty of the Year award.



CEEFA Technical Session speakers from left to right: Adda Athanasopoulos-Zekkos, Mary Darr, Chris Smith, and Greg Perruzzi.

2010 ASCE-CEEFA Banquet Awards

- ASCE Fellowship – Evan Avery
- GSI of the Year – Remy Lequesne
- Staff of the Year – Matt Blank
- ASCE Professor of the Year – Jerome Lynch
- Recognition of Service, Outgoing CEEFA Board Member – Earl Howard
- CEEFA Faculty Award – E. Benjamin Wylie

Alumni Updates

Jason Cumbers, P.E. (BSECE '99) was recently appointed Shareholder at Soil and Materials Engineers, Inc. (SME).

David R. Despres, P.E. (BSCE '55; MSCE '56) was elected Fellow of the American Society of Civil Engineers (ASCE). Before his retirement in 1987, David had been a practicing member of civil engineering for over 30 years. He has been a member of ASCE for more than 55 years and is a Life Member of the Society. David looks back on his time at U-M as the key to his success in life.



Larry P. Jedele, P.E. (BSECE '72; MSME '73) Vice President/Principal with Soil and Materials Engineers, Inc. (SME) was elected Vice President of the Geo-Institute Board of Governors. Larry has served as a Governor on the Geo-Institute Board since 2006 and has been actively involved in ASCE for over 30 years. He has served in several local and national level leadership positions, including the Ann Arbor Branch President, Michigan Section President, District 7 Director, national Policy Review Committee Chair, and member of the Technical Activities and Mentoring Committees.



Jason Schwartzenberger, P.E. (BSECE '97) was recently appointed Senior Associate at Soil and Materials Engineers, Inc. (SME).

Carey J. Suhan, P.E. (BSECE '85) Vice President and Principal at Testing Engineers and Consultants, Inc., received the Franklin D. Meyers, P.E. Outstanding Civil Engineer of the Year Award at the Southeastern Michigan Branch of the American Society of Civil Engineers (ASCE's) annual meeting. This award is given based on an individual's contributions toward the advancement of his/her profession through innovative designs, doctoral studies, or ethical practices as well as active participation in professional societies and community service. Carey's membership in the SE Branch of ASCE has spanned several decades and includes contributions as Past President, President, President Elect, Secretary, and Treasurer, as well as Annual Meeting Chair and Director. He was also President of the ASCE Student Chapter of the University of Michigan and active in the ASCE Concrete Canoe competition while at U-M.



Melissa Wu, P.E. (BSECE '03) was named a semi-finalist in the national New Faces of Engineering 2010 program. Melissa plans and designs wastewater and water projects with CH2M Hill's Water Business Group in Seattle, Washington. She is currently working as a project engineer for a water reclamation facility where she is responsible for updating the conceptual design for odor control at the headworks facility, helping to make the plant a better neighbor for the community.



Coming Events

“SAVE THE DATE”

Please check the CEE homepage for event updates.

October 15, 2010

Student Awards and Alumni Reception

12:00-2:00pm
G.G. Brown,
Blue Lounge

October 16, 2010

CEEFA Tailgate and Football Game

1:00pm – Michigan vs. Iowa (homecoming)
Clubhouse, University of Michigan Golf Course, 500 E. Stadium Blvd.
This year, the CEEFA Tailgate will be held in conjunction with the Michigan Engineering Homecoming Weekend (MEHW) Tailgate at the University of Michigan Golf Course Clubhouse. CEE will have its own designated area.

To register for this event, or other MEHW events, please visit: www.engin.umich.edu/homecoming

In Memoriam

In order by year of graduation:

Ching-Ying Kao (BSCE '24; MSE '25)

Unknown

Ruf Shu (BSCE '24)

Unknown

Kai-Shou Liang (BSCE '25)

Unknown

Ping Woon Lee (BSCE '26)

Unknown

Tse Ying (BSECE '32)

Unknown

George W. Housner (BSECE '33)

November 10, 2008

Marius Lodeesen-Grevinck (MSE '33)

January 1, 1984

Leonard B. Dworsky (BSECE '36)

March 28, 2008

Michio Inouye (BSECE '38)

August 6, 2009

Mr. Robert A. Diepenbrock (BSECE '40)

November 6, 2009

James Edwin Howard (BSECE '43)

December 31, 2009

Charles Wilson (BSECE '43)

April 5, 2010

Mr. Joseph H. Silversmith, Jr. (BSECE '46)

May 30, 2010

Floyd J. Miller (BSECE '48)

January 5, 2010

Dale Rankin Ream (BSECE '51)

May 11, 2010

William H. Martin (MSE '55)

June 9, 2010

Mr. Roy S. C. Chang (MSE '59)

January 13, 2010

Richard D. Vaughan (MSE '62)

May 28, 2010

Dr. Yong Suk Chae (PhD '64)

January 13, 2010

Stephen T. Leubecker (BSECE '68; MSE '69)

March 3, 2010

John C. Chambliss (MSE '70)

February 9, 2010

Ronald T. Ruiter (BSECE '74; MSE '75)

July 14, 2010

Michael Francis Casey (MSE '75)

July 12, 2010

Richard R. (Rick) Noss (MSE '73) passed away in October 2009. Rick went on from his graduate work at U-M to a PhD at MIT, and was a Registered Professional Engineer in Ohio and Virginia. He had been working as a Senior Project Engineer at Stantec, Inc. in Columbus, Ohio and was involved in several engineering projects related to storm water drainage. Rick was well respected and well liked, and will be missed.

We would like to hear from you!

Please send your updates and announcements (i.e., marriage, births, awards and recognitions) by e-mail to kagauss@umich.edu or by mail to the address at right.

Please be sure to include the following information: name, address, phone, and e-mail address.

Would you like to receive this magazine and other departmental announcements electronically? If YES, please reply to: kagauss@umich.edu

University of Michigan
Dept of Civil & Environmental
Engineering, Alumni Updates
2350 Hayward Street
2340 G.G. Brown
Ann Arbor, MI 48109-2125

November 5, 2010

ASCE Career Fair

Time to be announced
Duderstadt Center,
North Campus

February 12, 2011

CEEFA Wine Tasting Event

7:00-10:00pm
Matthaei Botanical Gardens
Conservatory

April 1-3, 2011

Steel Bridge and Concrete Canoe Regional Competition

Time to be announced
The bridge competition will be
held on North Campus at the
Commons Cafe in Pierpont.
The canoe competition location
has yet to be determined

April 8, 2011

CEEFA Spring Technical Session

ASCE and CEEFA Banquet
Time and location to be
announced

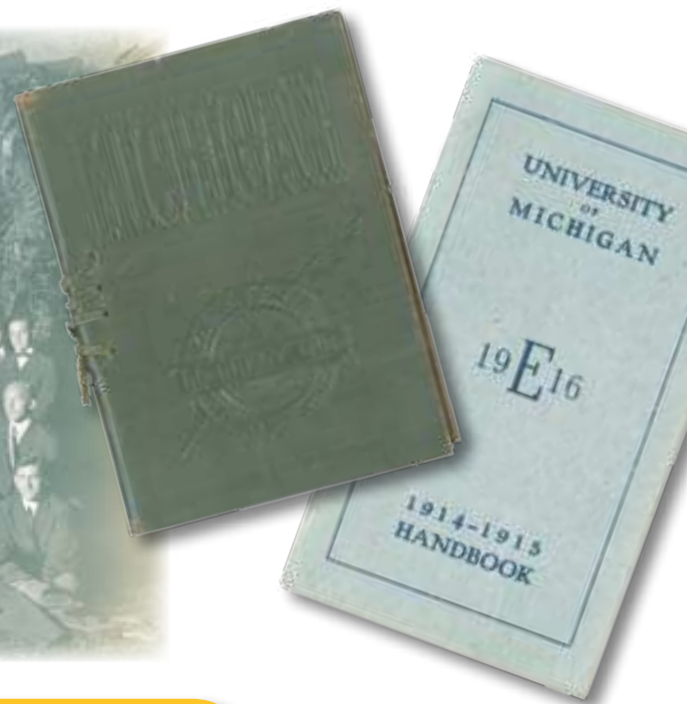


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Snapshots of the Past

These images were part of a scrapbook collection created by William Lewis Stanton, a 1916 graduate of Civil Engineering. The caption on the photo below reads: *1916 Engineer's Smoker, Oct. 10, 1913*. The scrapbook was donated to CEE by the Stanton family and added to the holdings at the Bentley Historical Library.



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