Fall 2015
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www.stonybrook.edu/civil

The Cable

The Newsletter of the Department of Civil Engineering at Stony Brook University

Inside this issue:

Regular Features:

Banner Year for Stony Brook ASCE Chapter

By Eric Steiger and Morgan DiCarlo

ASCE: SBU had many accomplishments this year. In February, the SBU student chapter together with the Metropolitan Section of ASCE hosted a "Pinning Ceremony" in the Wang Center. This prestigious ceremony marked the national recognition of ASCE: SBU. Pictures and more details are on the Civil Engineering website.

In the fall, ASCE: SBU along with the National Society of Black Engineers and the Society of Hispanic Professional Engineers hosted speakers from Turner Construction. ASCE also co-hosted service events such as the Demystifying Engineering series and Bingo for Breast Cancer. Particularly, ASCE: SBU raised one hundred dollars in just one day for the SBU UNITE for Nepal event in response to the devastating earthquake – the "Gorkha earthquake" – that took place in Nepal, April 2015.

Also in April, the Stony Brook ASCE student chapter competed in their first Concrete Canoe Competition which is an integral part of the annual MET Regional ASCE Student Conference. Members designed and built a canoe made entirely out of concrete to race in the competition. The budget, management and construction of the project were all student-run with the support of Civil Engineering faculty, staff and the College of Engineering and Applied Sciences.

Stony Brook's ASCE student chapter also wrote a technical report as part of the Concrete Canoe Competition and delivered the oral presentation a few days before the boat race. Marie Baietto, Morgan DiCarlo and Kevin Hill represented the team at the oral competition, held at Rutgers University.

Continued on page 7…

2015 Concrete Canoe Team: (left to right): Emily Chao, Kristie Testa, Marie Baietto, Eric Steiger, Gabriela Saenz, Nicholas Lau, Anthony Cundari, Kevin Hill, Ranko Liang, Kevin Yee, Pasquale Giaquinto, Tamara Goodwin, Nelsy Badia, Dr. Walker, Morgan DiCarlo, Kelsey Price, Jason Lai, KaitlinBrown and Ramona Chen

Stony Brook University

A note from the Chair

Harold Walker, Ph.D., P.E.

The future looks bright…

It was an exciting spring semester and summer for Civil Engineering at Stony Brook University. Last April, the ASCE student chapter competed for the first time in the Concrete Canoe competition, hosted by the Metropolitan Section at Cooks Pond, New Jersey. I am proud to report the team earned 3rd place for their Oral Presentation. Read all about the competition in this edition of *The Cable*. In April, we held our annual Faculty and Staff Retreat at the Child's Mansion near Flax Pond and launched a strategic planning process to chart our next phase of growth. In May, the University Senate approved our proposal to become an independent department in the College of Engineering and Applied Sciences (CEAS), with the Provost's Office providing the final approval over the summer. In August, our Ph.D. program was formally approved by the New York State Education Department, adding to our previously approved Advanced Graduate Certificate and M.S. programs. Civil Engineering is now an independent department with the full complement of academic programs, from the B.E. through the Ph.D. We are only the second such department in the entire SUNY system.

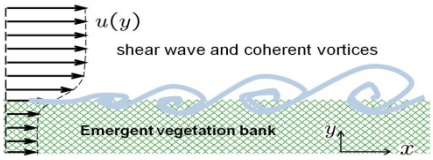
These achievements are a clear reflection of our collective success (students, staff and faculty) and the promise the university sees in our continued growth and development. From competing in the Concrete Canoe competition to winning national awards and honors, our students are doing amazing things right out of the gate. Our students are also gaining valuable experience through summer internships and undergraduate research. Our staff works tirelessly to launch new programs, keep existing programs moving forward, and look creatively for new, more effective ways of doing critical functions. I'd especially like to highlight my assistant, Ms. Erin Giuliano, for developing our website over the past year. This was a huge task and Ms. Giuliano did a fantastic job! Our faculty are developing exciting new courses and excelling in research and service. In just three years, in fact, our Department has secured over $3 million in external research funding from a variety of sources, such as the National Science Foundation (NSF), New York State Energy Research and Development Authority (NYSERDA), New York Sea Grant, and the New York State Department of Environmental Conservation (NYS DEC), to name just a few.

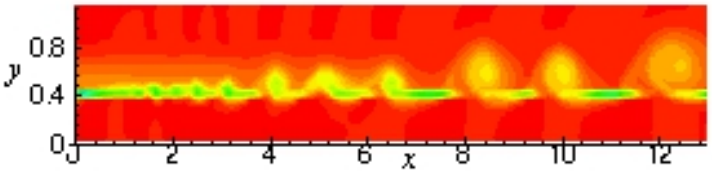
And the upcoming year looks to be just as exciting. In the Spring of 2016 we expect our first graduating class of B.E. students. We just launched a search to hire a new faculty member to start in the Fall of 2016. I am also excited to note that Civil Engineering will be the academic home of the new Dean of CEAS, Fotis Sotiropoulos who starts in October. We are also in the process of renovating a number of new teaching and research spaces in Heavy Engineering and Computer Science to significantly enhance our labs and other facilities. It has never been a better and more exciting time to be a Civil Engineer, especially at Stony Brook University. Go Seawolves!

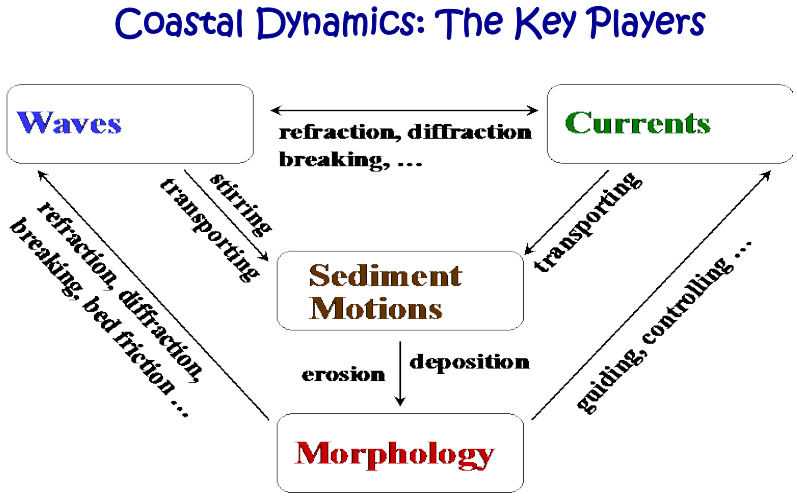
Environmental Fluid Mechanics and Coastal Hydrodynamics

by Dr. Jie Yu

A contaminant, released into a natural fluid system, will not become a pollution event until it travels and mixes into the system, causing negative effects. But pollution events always occur, because fluid flows. How do the pollutants travel? What do they become on the journey, and what other secondary pollutants do they generate? How are sediments transported? How are shorelines shaped, and why do they change? Why do some beaches erode, and some not (at least so rapidly)? These are some typical questions that are addressed by Environmental Fluid Mechanics – the scientific study of naturally occurring fluid flows of air and water that affect the environmental quality and resilience of the fluid systems on our planet Earth, i.e. the atmosphere, oceans, lakes, rivers, wetlands and flood plains.







Guided by experiments and observations, and with judicious use of mathematical methods, Dr. Yu and her students focus on carefully formulated theoretical and numerical studies of complex fluid phenomena in simplified settings, thereby developing a better understanding of the physical processes that are relevant to climate and energy in natural environments. Current activities in our group include, 1) numerical study of shear flows in open channels through vegetation, understanding the physical mechanisms affecting transport and mixing of nutrients and sediments that are important in coastal wetland development and restoration; 2) theoretical study of surface and internal waves propagating over topographies, with a long-term goal to improve the knowledge and modeling skills of nearshore wave-current-morphology interactions, and coastal ocean mixing; 3) hydraulic modeling of multiple bays and inlets on Long Island's south shore barrier islands, developing an engineering tool that is easily accessible, efficient and accurate in providing scientific information needed in planning, management and decision-making; 4) symmetry-breaking and rectification, relating to wave energy harvesting, peristaltic transport and micro-pumping.

Calling all CIV students!
Please join us for
CLASS PICTURES!

Friday, Nov. 6 at 3 pm
Civil Engineering
Program Office

Art in Strucutral Engineering

by Dr. Ryan Giles

Engineering can be considered as much an art as it is an applied science. Creativity is an important characteristic of a good engineer. This is especially true of a structural engineer who works with architects on buildings and bridges that are often as sculptural as they are structural. As a result, structural engineering often attracts creative-minded engineers. Many famous structural engineers wrote poetry or painted. For example, Joseph P. Strauss, the chief engineer of the Golden Gate Bridge, wrote several poems about his completed masterpiece.

To encourage creativity and put our profession in its societal context, students in my CIV 312 Design of Civil Engineering Structures course, were encouraged to complete an extra credit project by creating an original poem, song, or work of art focusing on structural engineering, specifically steel or reinforced concrete. The class submitted three songs, three drawings, one water color painting, and two poems.

Though all submissions deserve approbation, senior student Tenzin Gyphel wrote a poem of exceptional quality. After the 7.8 magnitude "Gorkha" earthquake that took place on April 25, 2015, we had a discussion in CIV 312 about the role civil engineers play in preventing casualties during and after an earthquake. For Tenzin, this earthquake struck, quite literally, close to home. He said, "although Tibet is my motherland, Nepal is where I was born and raised. Countless memories and experiences from my childhood came from Kathmandu, Nepal. The news of the earthquake shocked and saddened me. … My homeland was broken and I needed to share my feelings about it." The Art of Structural Engineering provided him such an opportunity.

Tenzin has always enjoyed poetry and took a creative writing course in high school. However, this is the first poem that he has written since high school. He is inspired by the simplistic writing styles of e. e. cummings, Mitch Albom, Malcolm Gladwell, and Ernest Hemingway. Tenzin also sees Leonardo DaVinci, one of the greatest examples of an engineer-artist in history, as his inspiration. The creativity and humanity that are inherent in the civil engineering discipline are what inspired Tenzin to become a Civil Engineer. When choosing a college major Tenzin says that he decided "to pursue a practical, hands-on field. After a great deal of reflection, Civil Engineering was my choice. I came to realize the positive impacts and the great achievements of Civil Engineers."

As our department continues to grow, I hope to continue the Art of Structural Engineering project and use it to emphasize that creativity, in all its forms, in an essential part of engineering. In between all the problem sets and technical jargon, this project can be a simple reminder that as civil engineers we are creating a civilization and civilizations are defined by their arts and humanity.

"Where science ends, art begins."
Charles Nègre, French pioneering photographer, 1820-1880.

HER SONG I

BY TENZIN GYPHEL

she doesn't know it but her song had started already
it started as she was playing out in the streets
sunny beautiful day with the neighborhood kids
laughing that snorting laugh
smiling that crooked smile
she was soaking in life's greatest gift
childhood

it started as she began the journey home
dusty unpaved road with street vendors on each side
skipping to her beat
singing her favorite song
she was tasting what everyone hopes to achieve
happiness

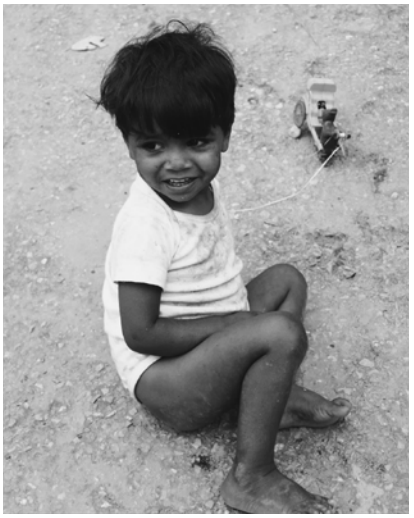
it started as she fell
scraped up palms and cuts on her head
bewildered as to why and how
pain flowed through her veins
she showed what no one ever wants to see
tears

she felt the world move
roars from earth's belly
followed by the loudest silence
then the whole country screamed
eyes closed and ears covered
they finally opened
where she was she didn't recognize
similar road
but not the same
similar faces
but not the same
air filled with dust and smoke
everything broken
everyone bloodied

she walked to where her home was
unreinforced masonry brick structure
nothing but rubble now
this can't be
this isn't her home

she walked around the pile of bricks and stone
stepped on some broken glass
noticed something underneath and picked it up
it was them on a vacation in Pokhara last summer
sun shining on their blissful faces

she doesn't know it but her song had started already
it started as she cried day and night
papa...mama...
where was that crooked smile
where was that happiness
where was the child



Homeless girl in Indi (2010, Tenzin Gyphel)

Meet Your Classmate! James McWilliams

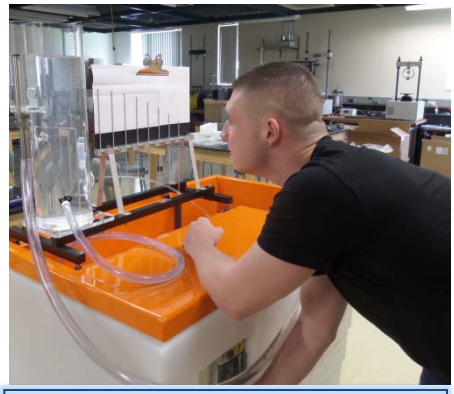
James McWilliams, class of 2017, is starting his junior year Stony Brook. We caught up with the Long Island native for a brief interview.

TC: What made you choose Civil Engineering at Stony Brook and now that you're getting ready for your junior year, what is some advice you can give to students who are still working on courses to get them ready for CIV classes? *When I was in high school, I was very lost about the major I would choose in college but I knew for a fact that I didn't want to go to college undecided. So I did a lot of research on science majors and decided that Civil Engineering was a good choice for me because of my strong interest in the earth and how we as humans used our knowledge of the earth to make structures that produce energy, provide transportation, living spaces etc. Stony Brook had just developed a new civil engineering program and I liked that this new program could have new innovative advantages as opposed to other established programs at other universities. Going into my junior year, I'm excited to finally be enrolled in civil engineering classes. To those facing the same challenging courses to get to this point, I would say that although many of the prerequisite courses are difficult and tedious, they end up being very valuable down the road, and more rewarding than you might think. The subject matter in these courses is imperative for success in civil engineering, mostly because these classes will teach you new ways to think and solve engineering problems.*

TC: What classes have you taken that have been particularly interesting and engaging for you? *As a geology minor, some of the most engaging courses for me have been those outside the strict course guidelines for my major. GEO 106, was a class i took this past semester about the planetary geology of our solar system. Although the focus seems to be far from Civil Engineering, the class opened my eyes to new potential careers I could have after college in civil engineering. Another class that was particularly interesting for me was MEC 363 titled Mechanics of solids. In this course the subject matter is all about the internal forces that affect different materials and structures. I felt this was intriguing because it was the first time i ever felt like an engineer, solving the problems related to different forces placed on structures, instead of just sitting through a lecture of physics material, such as many of the other preliminary courses seem to constitute.*

TC: What kinds of clubs, sports or other activities are you involved with at SBU? *I am very involved with Greek Life on campus. I am a proud Brother of Kappa Sigma Fraternity, Sigma Delta Chapter, and hold an important authority position in our fraternity's governing body. My time in the fraternity has taught me much and has allowed me to participate in several charity events and other work to improve the university. I have also recently been elected the secretary of the Inter Fraternal Sororital Council here at SBU and I plan to help improve Greek life on campus and also make campus a more exciting and worthwhile place for everyone. Other than my involvement in Greek life I love to play on the intramural sport teams set up by the rec center. Throughout the year I participate in flag football, volleyball, and soccer to keep busy and healthy.*

TC: What Civil Engineering "specialization" are you most interested in pursuing? *I am most interested in pursuing the Geotechnical specialization. I am a geology minor and have loved everything about earth science since the 8th grade. Along with my study of engineering I believe that a strong background in earth sciences can put me on the best career path possible for me so that I can always be interested in my work, and hopefully make a difference in our society.*



James worked in the CIV lab this summer, helping to prepare hydraulics labs. "It was very rewarding because it gave me insight into future courses that I will be taking and all the effort that goes into setting up a new course." James also said that he is very glad to be a part of advancing the CIV program at SBU.

James at the Chron's/Colitis walk at SBU last year, kneeling 3rd from left.

Internship Opportunities

Internships are a great way to gain experience in Civil Engineering while still an undergraduate student. Many companies, municipalities, and other government agencies offer paid internships during the summer and other parts of year. Why not gain valuable experience in Civil Engineering and also earn a paycheck? Often summer internships can lead to full-time job offers upon graduation. At the very least, you will gain valuable experience to put on your resume as well as learn more about the exciting profession of Civil Engineering. If you are a current student in Civil Engineering, please make sure you receive (and read) emails from our office – [civ_students]. Dr. Walker usually sends out internship opportunities via email and quite a number of our students have successfully gotten internships this way! (Our most recent Internship list is here.) You may also consider doing research over the summer. The National Science Foundation and Department of Energy both have great programs that provide opportunities for undergraduates. You can also approach a faculty member at Stony Brook University to discuss opportunities here on campus. If you'd like to know more about internships or research opportunities, please stop by the Civil Engineering Office in 250 Heavy Engineering.

CIV debuts another lab course, Geotechnical Engineering

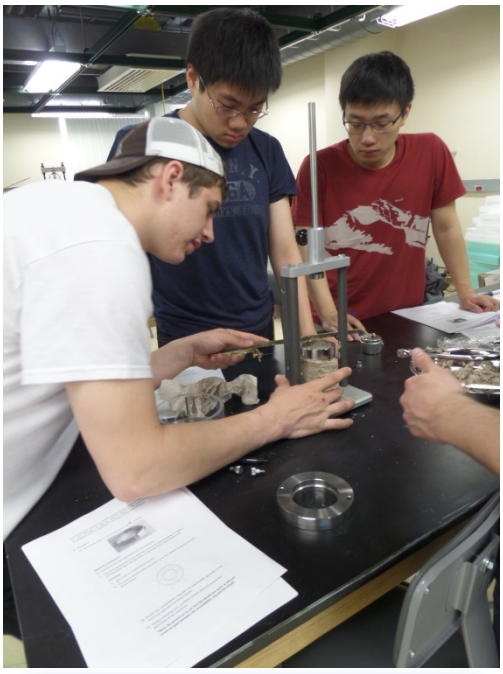
In the last edition of this newsletter, we featured the first lab course taught for Civil Engineering, CIV 340 - Materials. For spring 2015 semester, we offered CIV 341, the second of our 3-lab course sequence. Ms. Brown, Civil Engineering's Lab Technician shares a little about CIV 341 below:

During CIV 341, students explored the properties of soil and their effects on engineering design. Students first learned to classify different soil types and then determined the geotechnical characteristics of the soil. Getting "dirty" took on a whole new meaning during the course, as students were required to perform experiments on wet clay, sand, and silt that were often mixed with organic material. Although getting dirty can be fun, this was a critical component of the course. Geotechnical Engineers must be able to assess the ground profile for new construction projects and engineer a solution for a solid foundation. This process often begins by simply picking up a handful of soil at the job site and feeling it. From there, a knowledgeable geotechnical engineer can classify the soil type and begin the procedure of completing a thorough ground profile evaluation and detailed foundation design.

To create the most dynamic learning experience possible, experiments performed in CIV 341 were coordinated to match the topics being taught in CIV 330, Soil Mechanics. Through this combined approach, students were able to complete a Consolidation Test on clay, a complex multi-week experiment. The Consolidation Test is performed to determine the effects on laterally confined clay under different vertical loading scenarios. Results from the consolidation tests provide critical information to geotechnical engineers preparing site plans. This multifaceted experiment required students to combine and apply theoretical and mathematical knowledge acquired during Soil Mechanics and the technical and analytical knowledge already acquired in lab. This experiment acted as a great culminating laboratory project!

Beyond hands-on lab work, students in CIV 341 were also granted the opportunity to meet Mr. Andy Burns, P.E. who is the Drilling Operations Manager at Posillico, Inc. and President of the Northeast Chapter of the International Association of Foundation Drilling (ADSC). As an engineer tackling major geotechnical engineering challenges in and around New York City, Mr. Burns was able to share many examples of large scale geotechnical challenges he has worked on and the dynamic solutions that he helped engineer. After an engaging presentation, students participated in a lively Q&A session. It was a great experience to have a local professional volunteer talk with students in CIV 341 and we look forward to continuing the tradition in future years.

Gabby and Emily working on a proctor compaction test in lab.



Chris, Yuanchun, and Schicheng trimming a clay sample for a consolidation test.

Nicole mixing clay for a Atterberg test.

ASCE Banner Year cont'd.

The presentation was judged on conciseness, expert content and the team's response to questioning by three professional engineers. Because of everyone's hard work and dedication, Stony Brook's ASCE chapter won third place for the oral presentation and technical report. So much was learned from this first year and the team is already working on a new canoe this fall!

The Elected Executive Board for ASCE 2015-2016:

President
Morgan DiCarlo
Vice President
Marie Baietto
Treasurer
Kristie Testa
Secretary
Eric Steiger
Fundraising Chair
Nelsy Badia
Historian
Emily Chao
Concrete Canoe Captains
Anthony Cundari, Pasquale Giaquinto and Kevin Hill

JOIN US!

For events and general info, check the bulletin board outside the Civil Engineering Office. Announcements are also made on the chapter's website and Facebook page:
http://stonybrook.collegiatelink.net/organization/ASCE
http://www.facebook.com/stonybrookASCE

Civil Engineering Webnews

International High School Students Visit CIV Lab
In July, international high school students visited our CIV lab and participated in a couple of concrete experiments. Students formed teams and mixed concrete into bowling balls which they then used to go outside and bowl in a friendly competition. Concrete prizes were awarded to the winning team. Special thank you to Kaitlin Brown for teaching and organizing the event.

Professor Yazici Collaborates with CUNY
Professor Yazici is collaborating with CUNY on a new research grant to examine the use of social media feeds as an incident management support tool. There has been an emerging trend in transportation research to use social media feeds for various purposes ranging from gathering real-time traffic information for traveler information systems, to enabling direct interaction between transportation agencies and customers/passengers. The high population, dense transportation network and popular use of social media in New York City metropolitan area create a particularly interesting "laboratory" for such research directions. In this vein, this study explores ways to efficiently harvest the information content of crowd-sourced online social media feeds (specifically Twitter) for traffic incident/accident data and to effectively use the collected information as a traffic incident management support tool. The proposed concept not only saves the environment from the high toll of emissions and energy waste, it also has the potential to reduce fatalities due to roadway accidents. This project is a collaborative effort of Dr. Anil Yazici (SBU) and Dr. Camille Kamga (City College of New York), and funded by New York State Energy Research and Development Authority (NYSERDA). (April 2015)

Professor Walker Briefs Lt. Governor, Kathy Hochul, on Wastewater Treatment Research
On April 13, 2015, Professor Walker was part of a team of Stony Brook University researchers who briefed New York State Lt. Governor Kathy Hochul on efforts to reduce nitrogen pollution in coastal waters of Long Island. Dr. Walker participated in the discussion regarding the efforts of the newly created New York State Center for Clean Water Technology to research and develop the next generation of on-site wastewater treatment technology to remove nitrogen from individual septic systems. The meeting included Dennis N. Assanis, Provost and Senior Vice President for Academic Affairs, Anna Throne-holst, Supervisor, Town of Southampton, Matthew Whelan, Vice President for Strategic Initiatives and Dr. Chris Gobler, Associate Dean for Research and Professor, School of Marine and Atmospheric Sciences, among others.

Civil Engineering's First Photo Contest Winners
Students submitted up to 3 of their original digital photographs related to civil engineering, with a brief caption why the picture was important to them or how the picture was related to Civil Engineering. Holy Cheong and Soroush Hatamifardi won the prize - two tickets to the 13th Annual Engineering Ball! Hightlighted pictures are included on Page 8.

Stony Brook University

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Civil_Engineering@stonybrook.edu

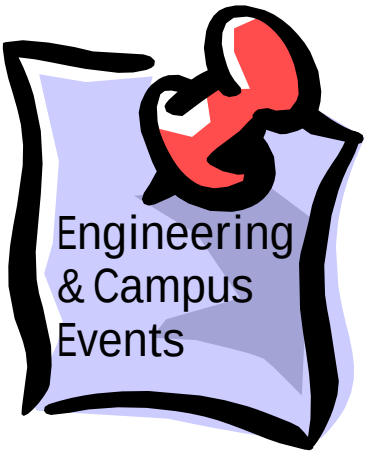
Please email us with any comments, suggestions, corrections, questions, or stories to include in future editions, etc. We love hearing from our students, the civil engineering practice community, and other stakeholders. We strive to make the newsletter as relevant and interesting as possible.

Thank you!

CIV Webnews cont'd.

Holy Cheong, '17 at her first site visit, I.S./H.S. 404Q. At the time, she was an intern for an architecture firm in Manhattan.

Brooklyn Bridge in the Evening Light, by Soroush Hatamifardi, '18



ASCE's Annual Conference
What? Annual meeting designed for learning and networking. Preliminary Program here.
When? *October 11 – 14*
Where? *New York, NY*

Spring Advising
What? Mandatory meeting for declared Civil Engineering students with their academic advisors to review spring courses. **Be sure to monitor your email closely for a message from our office.**
When? *October 13 – 30, by appointment*
Where? *Heavy Engineering Offices*

Engineering Carnival and Potluck Dinner
What? Annual charity event, complete with carnival booths created by student *groups*. Afterwards is a potluck celebration.
When? *November or December, 2015, date & time **TBD**. Please monitor the CEAS website!*
Where? *Old Engineering Lobby*

Giving to the Civil Engineering Program

Stony Brook University's Civil Engineering Program graciously accepts endowments and financial gifts. Regardless of the amount, each and every contribution we receive is important to the future of Stony Brook University and in particular, Civil Engineering's mission of teaching, research, and service to society. Whether your passion is student scholarships, helping us build our laboratories, or supporting faculty research, a gift to Stony Brook is a meaningful investment in creating a better future. To learn more, please contact the director of the program, Dr. Harold Walker, by phone 631-632-8315 or by email: harold.walker@stonybrook.edu

Make a Gift

Every gift matters.

Besides establishing student scholarships and research opportunities, one thing we would especially like is a 'Zalk Steel Sculpture'. Both artistic and educational, the sculpture displays in full scale the most common methods to connect steel in building construction. We would love your support in helping us with this project! If interested, please contact Dr. Walker, 631-632-8315 or harold.walker@stonybrook.edu

Photo courtesy of University of Wisconsin-Madison