PI TAU SIGMA ANNUAL CHAPTER REPORT
2013-2014
Stevens Phi Omicron

A. Initiations

Stevens Institute of Technology follows a broad based engineering curriculum with a common core for the first three semesters and students are not required to declare their engineering major before their fourth semester. In addition, nearly a quarter of all engineering students complete 3 to 4 semesters before declaring their major.

In order to ensure that all initiates graduate as Mechanical Engineering majors, the chapter has established a policy to initiate only juniors (5th and 6th semesters) and seniors (in their 7th semester). Students who have excellent academic record (top sixth or 16.7% and who have a GPA of 3.65 or "High Honors") and who are in good standing are reviewed and invited to become members of the Stevens Phi Omicron Chapter.

During AY 2013-14, Stevens conducted two initiation ceremonies. The fall initiation ceremony for the Academic year was conducted on December 5, 2013 and 16 new members were initiated. The spring initiation ceremony was conducted on May 5, 2014 and 23 new members were initiated. The following is a listing of the AY 2013-14 initiates.

Fall 2013 Initiates:

Auge, Jordyn N.
Brancato, Clayton C.
Doshi, Rushabh
Juzefyk, Brian J.
Miscione, Jeffrey N.
Muhammad Sabri, Farah Nadia
Savoia, Sarah A.
Stengel, Louis R.
Bagarozy, Logan
Defeligibus, Matthew E.
Heine, Ann E.
Kohlhepp, Milton S.
Misthos, Chloe A.
Romaniello, Charles H. III
Russell, Simms A.
Zahradka, Drew

Spring 2014 Initiates:

Bauroth, Angela R.
DelSanto, Eric A.
Fay, Brendan
Ferrabolli, Hyun June H.
Hunt, Matthew B.
Lewis, Michael-Robert C.
Mosca, Matthew W.
Oldja, Ryan T.
Quay, Nathan D.
Shelton, Cathryn L.
Thomas, Annemarie
Zahran, Sarah C.
Coccia, Matthew G.
Downey, Isaac
Fedorenko, Tatyana
Furnari, Dean M.
LaGrotta, Carly E.
Lovell, Matthew C.
Niezelski, Caroline L.
Pallikaras, Andreas I.
Schemetow, Andrew J.
Singh, Laurence A.
Wiedmann, Cory J.

The chapter pays the dues for all the students who are initiated. In addition, the chapter also provides stoles at no cost to all graduating seniors, who are members of the chapter. Funds for all chapter activities and socials are provided by the Mechanical Engineering Department.

B. Chapter Activities

Goals for 2013-14

- Initiate Members from the Senior and Junior Class during 2013-14 academic year
- Participation in the Annual Pi Tau Sigma conference, out-reach activities, and co-sponsorship of student-faculty activities.
- Participation in the ASME Region II student conference and in the design and oral presentation competitions
- Participation in the 2014 Research & Innovation and Engineering Design Day Events (jointly held on April 30, 2014).
- Promotion of events associated with promoting Mechanical Engineering and involvement in the Stevens Innovation and Entrepreneurship activities.
- Participation in community and outreach activities.

All goals for AY 2013-14 were met and the following is a brief summary of other chapter activities.

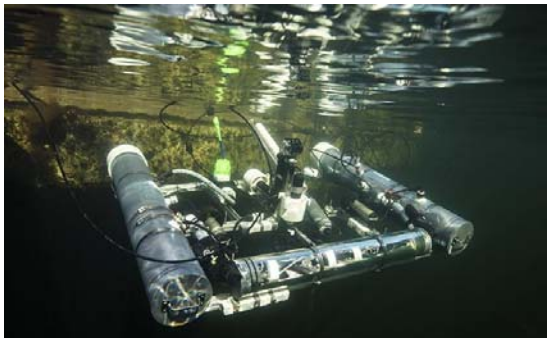
Activities

A special outreach program involving the organization of a STEM Club was started at the Lady Liberty Academy Charter School in Newark with Stevens Phi Omicron chapter officers Lindsay Crossan and Jeremy Wang as the coordinators. They provided an overview of engineering, especially mechanical engineering disciplines and mentored the students in their project work. As part this effort, students were taught how to use SolidWorks™ (a graphics package) and the basics of using BotBrain™ (an education robot kit). The project work required the student teams to design and fabricate components for an autonomous vehicle (using the BotBrain kit) that can navigate obstacles using the Stevens 3D printer; and construct and validate the vehicle performance. This was an enriching experience at the culmination of which the Stevens students were recognized for their dedication and service.

STEM Club members at Lady Liberty Charter School, Newark, NJ with Lindsay Crossan and Jeremy Wang.

Stevens welcomed about 40 middle school girls to campus on February 20 for “Introduce a Girl to Engineering Day,’’ as part of the activities during National Engineering Week. Started in 2001 as a joint effort between several groups and National Engineers Week Foundation, "Girl Day 2014’’ allows male and female engineers the opportunity to introduce more than one million girls and young women to science, technology, engineering and mathematics (STEM). At Stevens’ Girl Day, the fifth-through-eighth graders, collaborated in small groups as they participated in two hands-on activities: “Build a Paper Table,’’ where each group had to design

and build a table out of newspaper rolled into tubes and the “Helping Hand’’ activity, where they had to design and build a device that allows the user to grab different objects and drop them into a container that’s at least two feet away. Stevens Phi Omicron Chapter President, Lindsay Crossan was among the (seven) Stevens student volunteers, who worked with the groups, helping them with each activity.



Project Persius: Tethered Underwater Vehicle

In celebration of International Women’s Day, Stevens Institute of Technology welcomed more than 30 high school girls to campus on Friday, March 7, during its “Women in Science & Engineering Day,’’ to showcase engineering career. The girls viewed the Mechanical Engineering Department’s cutting-edge 3-D printing machine, toured campus, and were shown the capstone design projects that were to be on display during Stevens’ Innovation Expo (to be held on April 30). Some of the projects the girls saw were Perseus, a U.S. government-sponsored underwater remote-controlled vehicle for finding unexploded bombs; the Shell Eco Marathon Prototype Car; and the First Response Disaster Assessment, an unmanned system with the ability to offer assistance to first responders after a structure is damaged.

Rendition of the Stevens 2014 Formula SAE Car

The Stevens Phi Omicron chapter again assisted the Mechanical Engineering Department with the open house for accepted students, which was hosted by Stevens on Sunday, April 12-13, 2014. In addition to volunteering their time for the various laboratory tours and for interactions with the students and parents several senior capstone design projects including the award-winning Omnibot, Formula SAE car, the Regular and Advanced Class SAE Cargo planes, the 3D-printed Prosthetic hand, and the mock-up of Solar-Powered Fuel-Station for Hydrogen-Powered cars.

Stevens celebrated the Research & Innovation accomplishments and the successful completion of the Engineering Capstone Design of its graduating class on April 30, 2014 with Innovation Expo — an all-day campus gathering of Students, Faculty and Business Community. The annual campus event, organized by the Office of Innovation & Entrepreneurship, has always been a showcase of the creativity and problem-solving capabilities of interdisciplinary student teams that reflect the university’s academic approach to science, engineering, business and humanities. The Stevens Phi Omicron chapter assisted the Mechanical Engineering Department with the set up for the event and the distribution of ASME literature. Various capstone design projects were on display and they included the following from the Pi Tau Sigma members.

- Cargo Plane Design for SAE Competition ((Lindsay A. Crossan, Jared C. Crean)
- UAV Design for ASME Student Competition (Jeremy Wang)
- Design of a Pharmaceutical Cleaning System (Theresa D’Addio)
- Roboboat: Autonomous Surface Vehicle Competition (Kevin Grudzinski)
- 3D Printed Granular Jamming Prosthetic Hand (Melissa Indoe)

- Propulsion for Micro Underwater Robots (Jonell Watson)
- Project Perseus: Tethered Underwater Vehicle Design (Michael Giglia, Mark Siembab)
- Automatic Clothing/Footwear System (Ryan Miskanich)
- Formula SAE Car Design (Patrick Penna)
- Fuel Station for Hydrogen Powered Cars (Danielle DeFeo)
- Thermoelectric Cell Phone Charger (Farah Nadia Muhammad Sabri, Laurence Singh)
- Unmanned Air System Competition (Christina M. Lee)
- Automatic Lacing System for Self-Healing Fabrics (Andrew Lau, Ryan Miskanich)
- Omnibot: Design and Fabrication (Anthony Kauffman, William Robbins)
- Anaerobic Digestion Energy System for Processing Organic Waste (Christopher Ariante)

The chapter again successfully organized and implemented an academic tutoring program for the mechanical engineering undergraduate students during the fall and spring terms. The event covered all core engineering topics for the sophomore and junior class with a special review during the final exam period.

The Stevens Phi Omicron chapter has developed an Alumni Networking Database to track where alumni move to, work, or have previously worked, along with their contact information. This will be a living document that will continue for years to come.

Mr. Jeremy Wang (chapter vice-president) represented Stevens at the Pi Tau Sigma National conference at the Texas A & M University, College Station, Texas (February 21-23, 2014). As part of the networking during the convention Stevens has initiated a collaboration with the Pi Phi chapter of Cooper Union, New York.

The chapter members also volunteered at all the student visit days for the Mechanical Engineering department, and participated in various Mechanical Engineering panels and gave feedback to the External Advisory Board.

In addition, as part of social outreach, several members of the chapter again participated in the collection of food and clothing for the needy and the Hoboken shelter during the holiday period.

The chapter's web page (www.stevens.edu/pts) has been updated.

Graduates

Aramini, Gary	Ariante, Christopher L.
Crean, Jared C.	Crossan, Lindsay R.
D'Addio, Theresa Ann M.	Grudzinski, Kevin M.
Indoe, Melissa J.	Kaufmann, Anthony
Lau, Andrew Z.	Lee, Christina M.
Miskanich, Ryan J.	Muhammad Sabri, Farah Nadia
Penna, Patrick A.	Robbins, William J.
Siembab, Mark A.	Wang, Jeremy
Watson, Jonell B.	Zehra, Syeda B.

Awards & Recognition

Several of the Stevens Phi Omicron chapter members from the 2014 graduating class were recognized for their academic excellence and participation in various extra-curricular activities during the graduation.

The following chapter members of the graduating class were recognized for their academic excellence.

- **Lindsay R. Crossan** and **Ryan J. Miskanich** were the co-recipients of the *Eugene Fezandie Award* for best overall performance by a graduating senior in Mechanical Engineering in the sequence of junior and senior year Mechanical Engineering courses.
- **Lindsay R. Crossan** was also the recipient of the *Richard S. Magee Excellence Award* for demonstrating both extracurricular involvement and leadership in departmental and campus activities.
- **Christopher L. Ariante** received the *Arthur J. Grymes award* for demonstrating greatest interest and proficiency in fluid mechanics.
- **Jared C. Crean** was a co-recipient of the *Elie Fonrose Award* for his promise of advancement in the field of aerospace engineering.
- **Theresa Ann M. D'Addio** received the *Col. John Stevens Power and Energy Systems Award* for being the outstanding student of Power and Energy Systems.
- **Patrick A. Penna** was the recipient of the *Fernando Sisto Award* for his outstanding performance in Turbomachinery and Aerospace.
- **Jeremy Wang** received the *Kenneth J. Moser Award* in recognition of his outstanding performance in heat transfer.
- **Syeda B. Zehra** was the recipient of the *Robert H. Thurston Leadership Award* given to the *ASME* Student Chapter officer who has demonstrated high leadership skills.
- **Michael A. Giglia, Anthony J. Kaufmann, William J. Robbins and Mark A. Siembab** were members of the design team that received the *Senior Design Project Award* for outstanding capstone design project in Mechanical Engineering.

Lindsay R. Crossan, Kevin M. Grudzinski, Ryan J. Miskanich, Andrew P. Misthos, William J. Robbins and **Syeda B. Zehra** received both a Bachelors degree in Mechanical Engineering with High Honors as well as a Master of Engineering Degree.

Anthony Kauffman and **William J. Robbins** were among the recipients of the *Center for Environmental Systems Hydroglobe Award* given annually to the senior capstone design project that exemplifies research and entrepreneurship.

Jared C. Crean was a co-recipient of the *Theta Alpha Phi, Yelena Petrovna Award* given to the senior who has contributed most to the advancement of theater arts at Stevens.

Many of the Stevens Pi Tau Sigma chapter graduating class of 2014 were also members of Tau Beta Pi, the Engineering Honor Society.

At the state level, **Tatyana Fedorenko** and **Christina M. Lee** were selected from Stevens to receive the *NASA New Jersey Space Grant Fellowship* for their outstanding academic record. As

part of this *state-wide* award they each participated in a research project of aerospace relevance and presented a research paper and poster at the state-wide *NASA New Jersey Space Grant* meeting (Rutgers University) to highlight their work.

Plans for 2014-2015

Our plans for the upcoming year consist of educational, social, and outreach activities. Among others, it will include mentoring of freshmen and sophomores interested in pursuing mechanical engineering; enhancement of STEM club outreach activities to expose high school and middle school students, especially those from under-represented groups, to the excitement of mechanical and related engineering fields; participation in the Stevens Innovation and Entrepreneurship program, sponsorship of engineering seminars, co-sponsorship and participation in professional society student chapter activities, as well as the promotion and publicizing of the Mechanical Engineering program activities within Stevens.

In addition, the chapter plans to distribute the stoles and recognize the graduating seniors during the annual banquet.

Chapter Officers

President:	Lindsay R. Crossan
Vice President:	Jeremy Wang
Secretary-Treasurer:	Christina M. Lee
President Elect:	Drew Zahradka
Vice President Elect:	Sarah A. Savoia
Secretary-Treasurer Elect:	Rushabh Doshi

The elections for the chapter officers were held on May 5, 2014 following the initiation ceremony. The current group of officers explained the responsibilities and chapter activities to the officers-elect who will govern during the 2014-15 academic year. The chapter responsibilities were transferred during the last week of the term.

Chapter Advisor: Siva Thangam, Professor, Department of Mechanical Engineering**,** Stevens Institute of Technology, Castle Point on Hudson, Hoboken, NJ 07030 **(**sthangam@stevens.edu**)**

Chapter Website: www.stevens.edu/pts

Reporter: Siva Thangam