

2014-2015 ANNUAL REPORT

Purdue University Student Chapter of the Earthquake Engineering Research Institute



Report Date: May 1, 2015

This report summarizes the membership and activities conducted by the Purdue University Student Chapter of the Earthquake Engineering Research Institute during the 2014-2015 academic year.

MISSION & GOALS

The purpose of the EERI Purdue University Student Chapter is the dissemination of knowledge of the theory and practice of all phases of Earthquake Engineering and other related fields, as well as the furtherance of the professional development of students. The object of the chapter is to encourage and inform the students in reducing earthquake risk by advancing the science and practice of Earthquake Engineering by improving the understanding of the impact of earthquakes on the physical, social, economic, political and cultural environment, and by advocating comprehensive and realistic measures for reducing the harmful effects of earthquakes (<https://engineering.purdue.edu/EERI>). The goal for this year was to rebuild and reengage our members, and to provide support to the undergraduate students representing Purdue in the Seismic Design Competition.

MEMBERSHIP

The Purdue University Student Chapter had a total of 34 members in 2014-2015 according to EERI national. Twenty-four members attended chapter meetings and activities.

OFFICERS

The Board consisted of the following members:

| Role | Name | EERI Member Number | Email | Student Status |
|----------------|-----------------|--------------------|---------------------|------------------|
| President | Benjamin Taylor | 16031 | taylo113@purdue.edu | Graduate student |
| Vice President | Lucas Laughery | 16595 | llaugher@purdue.edu | Graduate student |
| Secretary | Rachel Chicchi | 17186 | rchicchi@purdue.edu | Graduate Student |
| Treasurer | Chase Perry | 17425 | perry6@purdue.edu | Graduate Student |

In Fall 2014, (4) Board meetings were held in order to plan the semester's events. The following officers also attended: Barnard Mondal (Seismic Design Grad Chair), Yunlan Zhang & Derek Daluga (Outreach Chairs), Yutian Sun (Seminars and Training Chair) and Aishwarya Puranam (Social Chair).



Figure 1: Board members of the Purdue EERI Chapter
 (Lucas Laughery – Vice President, Ben Taylor – President, Rachel Chicchi – Secretary, Chase Perry – Treasurer)

FACULTY & INDUSTRY ADVISORS

Ayhan Irfanoglu
 Purdue University, School of Civil Engineering
 1040 S. River Road
 West Lafayette, IN 47907
 Tel: (765) 496-8270
 Email: ayhan@purdue.edu

We do not currently have a local professional contact.

MEMBERS

A complete list of members is shown below.

| Name | EERI Member Number | Email | Student Status |
|-----------------------|--------------------|--|------------------|
| Ricardo Basora-Rovira | 17381 | rbasorar@purdue.edu | Graduate Student |
| Ghazi Binarandi | 17418 | ghazi@purdue.edu | Graduate Student |
| Di Chen | 17397 | chen1406@purdue.edu | Graduated |
| Li-Hui Cheng | 17403 | cheng231@purdue.edu | Graduate Student |
| Rachel Chicchi | 17186 | rchicchi@purdue.edu | Graduate Student |
| Adam Clauss | 17345 | ajclauss@outlook.com | Graduated |
| Derek Daluga | 17376 | ddaluga@purdue.edu | Graduate Student |
| Joshua Freer | 16581 | jfreer@purdue.edu | Graduated |

| | | | |
|-------------------|-------|--|-----------------------|
| Weiphang Gan | 17421 | ganw@purdue.edu | Graduate Student |
| Laura Hillman | 17215 | hillman@purdue.edu | Graduate Student |
| Kevin Jackowski | 17177 | kjackows@purdue.edu | Undergraduate Student |
| Kyle Johnson | 15996 | johns621@purdue.edu | Undergraduate Student |
| Payden Johnson | 16562 | john1157@purdue.edu | Graduated |
| Lucas Laughery | 16595 | llaughter@purdue.edu | Graduate Student |
| David Leechuy | 17430 | dleechuy@purdue.edu | Graduate Student |
| William Lupher | 15688 | wlupher@gmail.com | Graduated |
| Sam Magers | 17383 | smagers@purdue.edu | Undergraduate Student |
| Goran Milutinovic | 17380 | gmilutin@purdue.edu | Graduate Student |
| Barnard Mondal | 16053 | bmondal@purdue.edu | Graduate Student |
| Quang Nguyen | 14153 | nguyenq@purdue.edu | Graduate Student |
| Chase Perry | 17425 | perry6@purdue.edu | Graduate Student |
| Aishwarya Puranam | 17436 | apuranam@purdue.edu | Graduate Student |
| Connor Reising | 17180 | ennisc@purdue.edu | Undergraduate Student |
| Bethanie Rider | 17388 | brider@purdue.edu | Graduate Student |
| Will Ross | 17428 | ross146@purdue.edu | Graduate Student |
| Nicholas Skok | 17352 | nskoks@purdue.edu | Graduate Student |
| Yutian Sun | 17389 | sun392@purdue.edu | Graduated |
| Benjamin Taylor | 16031 | taylo113@purdue.edu | Graduate Student |
| Marisol Tsui | 17227 | tsuim@purdue.edu | Undergraduate Student |
| Joseph Voors | 17213 | voors@purdue.edu | Undergraduate Student |
| Andrew Wiese | 17539 | awiese@purdue.edu | Graduate Student |
| Alana Wilbee | 16572 | awilbee@purdue.edu | Undergraduate Student |
| Joselito Wong-Yau | 14222 | jwongyau@purdue.edu | Graduate Student |
| Yunlan Zhang | 17077 | zhan1337@purdue.edu | Graduate Student |

BUDGET & FINANCIALS

Income and expenses for the 2014-2015 school year are given below. The GSOGA Grant was awarded by the Purdue Graduate Student Government through the Graduate Student Organization Grant Allocation (GSOGA). It required a written proposal to illustrate what we planned to do with the allocated money. Due to thrifty money management this year, we should be able to bring in a number of additional speakers next year.

| | | |
|-----------------|--------------------------------|--------------------------------------|
| | | Beginning Balance: \$1,191.36 |
| Income | | |
| | Description | Amount |
| | Miscellaneous Donation | 50.00 |
| | GSOGA Grant | 860.00 |
| | FEMA/EERI Member Reimbursement | 330.00 |
| | | \$1,240.00 |
| Expenses | | |
| | Description | Amount |
| | Outreach Supplies | 11.75 |
| | Coffee for during Webinar | 14.54 |
| | Dinner at a member social | 57.00 |
| | Dinner at seminar | 53.19 |
| | Dinner at Call-out Meeting | 68.46 |
| | Speaker Meal Expense | 26.44 |
| | Speaker Reception | 66.96 |
| | | \$299.09 |
| | | Ending Balance \$2,132.27 |

CHAPTER ACTIVITIES

The list of all of the meetings and activities that occurred in 2014-2015 school year are listed below.

| Date | Event Description | # of Attendees |
|-------------|---|-----------------------|
| 8-31-14 | Board meeting | 5 |
| 9-9-14 | Chapter Meeting 1 | 35 |
| 9-24-14 | Board meeting | 4 |
| 10-16-14 | Chapter meeting 2 | 15 |
| 11-12-14 | Board meeting | 5 |
| 11-21-15 | Chapter meeting 3 | 10 |
| 11-23-15 | Social Event 1 | 10 |
| 11-24-15 | Outreach Event 1 | 6 |
| 1-27-15 | Board meeting | 7 |
| 2-17-15 | Chapter meeting 4 | 13 |
| 2-20-15 | Seminar Speaker | ~50 |
| 2-26-15 | Social Event 2 | 6 |
| 3-26-15 | Outreach Event 2 | 4 |
| 4-16-15 | Friedman Family Visiting Professional Seminar | 30 |

Our members were asked to join one of four committees. The committees are to meet, as necessary, to plan their respective events. These meetings are not documented by the secretary. The committees are: Outreach, Seminars and Training, Social, and Seismic Design Competition.

REGULAR CHAPTER MEETINGS

At each chapter meeting, in addition to providing updates and relaying necessary information to our members, we attempted to have a 'major activity.' Each of the four general chapter meetings are described below.

Chapter Meeting 1 : Callout for new members and voted on new officers. Explained committees and assigned new members to committees.

Chapter Meeting 2 : In preparation for an upcoming outreach event, we had our members conduct the activity that we were going to ask the high school students to perform. Our members built structures out of spaghetti and marshmallows, to be shaken on the shake table, and provided feedback on parameters for the activity (i.e. – amount of material, height restrictions, weights, etc.)

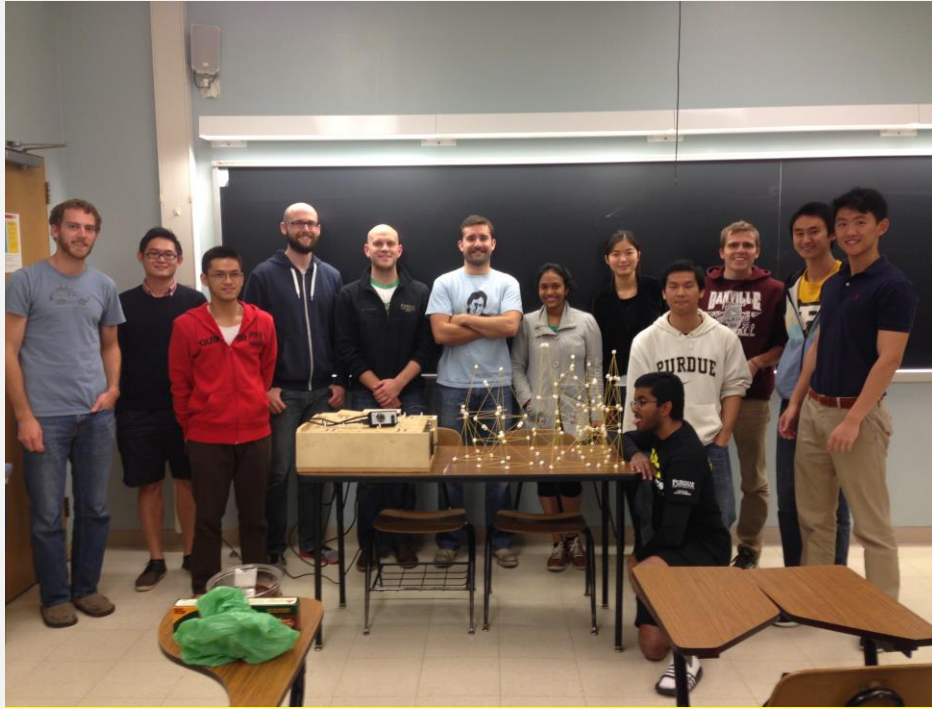


Figure 2: Purdue chapter members at regular meeting, demonstrating the outreach activity

Chapter Meeting 3 : At this meeting, we streamed the EERI ATC FEMA P154 Webinar, which was a free webinar offered through ATC.



Figure 3: Purdue chapter members watching the FEMA P154 webinar

Chapter Meeting 4 : At this meeting, we showed a documentary video about the 1994 Northridge Earthquake developed by EERI. It reported updates on the findings from this earthquake.



Figure 4: Purdue chapter members watching 1994 Northridge earthquake documentary

Seminar Speaker : Dr. Gustavo J. Parra-Montesinos of University of Wisconsin-Madison presented a seminar entitled "Simplification of Reinforcement Detailing in Earthquake-Resistant Coupled Wall Systems Through Use of High-Performance Fiber Reinforced Concrete." He spoke of using strain-hardening, high-performance fiber reinforced concrete for seismic applications in coupling beams. There was an informal reception to follow.

FRIEDMAN FAMILY VISITING PROFESSIONAL or DISTINGUISHED LECTURE VISIT

On Thursday, April 16th, we had the privilege of welcoming David Cocke (President, Structural Focus) to Purdue. This was part of a trip coordinated with the University of Illinois at Urbana-Champaign. Mr. Cocke presented a seminar entitled "Real Life as a Structural Engineer: More than Designing Buildings" to our structural engineering graduate students. His visit also included lunch with Purdue faculty members, a tour of the Bowen Laboratory for Large-Scale Civil Engineering Research, dinner with EERI student board members and a short tour of Purdue University.



Figure 5: Officers at dinner with David Cocke of Structural Focus
(Yunlan Zhang – Outreach Chair, Rachel Chicchi – Secretary, David Cocke – speaker,
Ben Taylor – President, Lucas Laughery – Vice President, Chase Perry – Treasurer)

Outreach Activities

Outreach Event 1 : EERI student members gave brief presentations about earthquake engineering to three different classes of high school sophomores and juniors at the Jefferson High School in Lafayette, IN. Following the presentations, students were grouped and instructed to build three-story structures using marshmallows and spaghetti noodles. They were told to use the knowledge that they obtained from the preceding presentation to make the structures earthquake resistant. Most students used symmetric lateral bracing in both directions. After the structures were built, they were tested on the EERI Purdue Student Chapter's unidirectional mini shake table.



Figure 6: Jefferson High School students constructing spaghetti and marshmallow structures

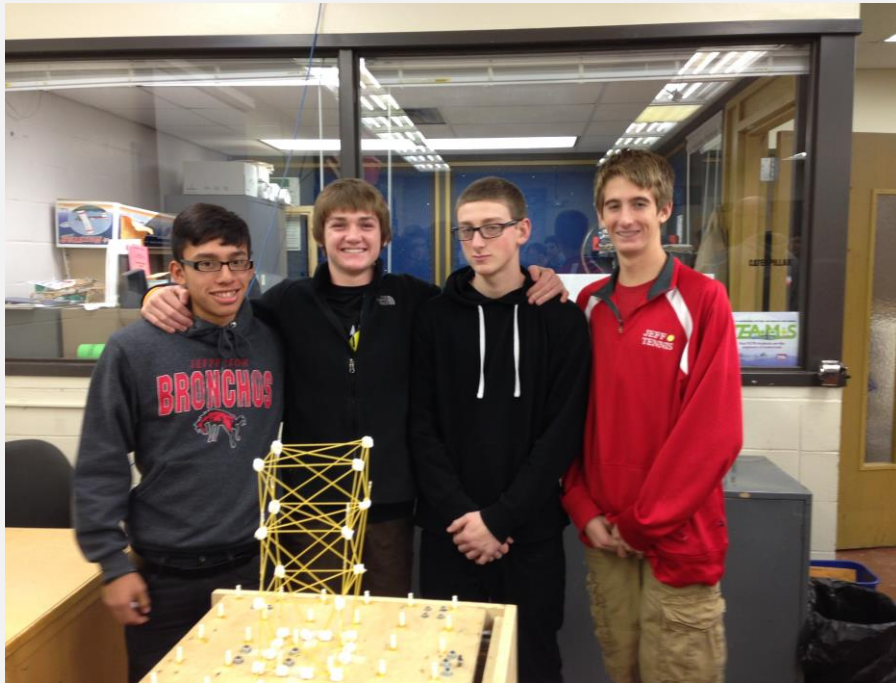


Figure 7: Jefferson High School students prepared to test their structure on the shake table

Outreach Event 2 : A similar presentation and activity was offered to 11 high school students from West Lafayette High School. They also toured the Bowen Laboratory (Purdue's large-scale structural testing lab) and saw a concrete cylinder tested to failure.



Figure 8: West Lafayette High School students constructing spaghetti and marshmallow structures

Social Activities

The social committee was created to foster comradery amongst chapter members. They held the following events:

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Purdue University Student Chapter of the Earthquake Engineering Research Institute

Social Event 1 : Members got together to enjoy pizza and a night out.

Social Event 2 : Members got together at a bowling alley to play some games.

SEISMIC DESIGN COMPETITION TEAM

The SDC team at Purdue has an active membership and is backed by both the EERI and ASCE student chapters. The team is made up of ASCE undergraduate members, with a few graduate advisors from the EERI chapter. We also receive support from a number of EERI faculty members at Purdue. The Purdue Student Chapter also received support from EERI to send a representative to the Annual Meeting and present a poster with chapter updates and activities.

SDC Team Members

A complete list of members is shown below.

| Name | EERI Member Number | Email | Role |
|-----------------------|--------------------|--|---------------------|
| Kevin Jackowski | 17177 | kjackows@purdue.edu | Team Captain |
| Morgan Joel | 17915 | mjoel@purdue.edu | Treasurer |
| Bochen Zhang | 17914 | zhang772@purdue.edu | Team member |
| Alysa Baird | 17922 | bairda@purdue.edu | Team member |
| Danny Rawson | 17910 | rawsond@purdue.edu | Team member |
| Shannon Gunn | 17897 | gunn3@purdue.edu | Logistics leader |
| Connor Reising | 17180 | ennisc@purdue.edu | Construction leader |
| Michael Black | N/A | black45@purdue.edu | Team member |
| Annie Gassner | N/A | agassner@purdue.edu | Team member |
| Shelby Griffin | N/A | griffis@purdue.edu | Team member |
| Andrea Kaufman | N/A | ar Kaufma@purdue.edu | Team member |
| Amber Reiff | N/A | reiffa@purdue.edu | Team member |
| Rachel Stewart | N/A | stewa121@purdue.edu | Team member |
| Loshini Vickneshwaran | N/A | lvicknes@purdue.edu | Team member |
| Xiao Zhang | N/A | zhan1189@purdue.edu | Team member |

SDC Team Financial Sponsors

A list of financial sponsors for the SDC team.

| Name | Email | Note |
|--|--|--|
| Purdue University Student Chapter of American Society of Civil Engineers | PurdueASCE@purdue.edu | The ASCE chapter at Purdue sponsored the team this year. |

Team results and lessons learned

The tower survived the first two ground motions and was deemed collapsed on the third. The tower was overweight by 0.08 lbs so our team was disqualified, but we were still satisfied with the performance of the tower. The lessons learned from this year's competition were to watch out more carefully for weight, to perform more optimization iterations, to consider damping systems more seriously, and to build a more secure

attachment system for the dead loads. In the future, we intend to also build a practice model, in order to achieve more accurate predictions.

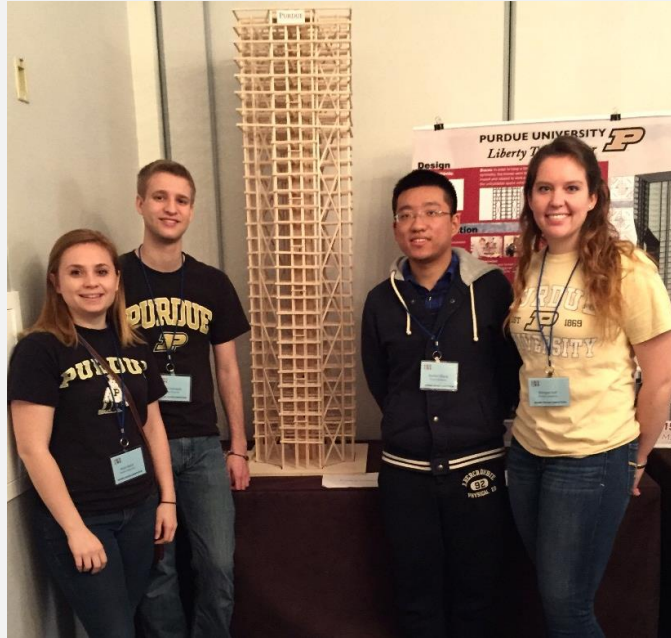


Figure 9: Students representing Purdue at SDC (Alysa Baird, Kevin Jackowski, Bochen Zhang, Morgan Joel)

ELECTION & ELECTION RESULTS

An election for officers for the 2015-2016 academic year will not be held until Fall 2015. This gives new students entering in Fall 2015 the opportunity to get involved. Current Board members will act in the leadership role until elections in the fall, at which time EERI national will be notified of the updated leadership.