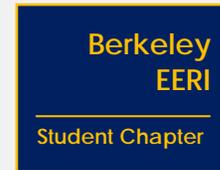


2015-2016 ANNUAL REPORT

University of California, Berkeley Student Chapter

of the Earthquake Engineering Research Institute

Report Date: May 02, 2016



This report summarizes the membership and activities conducted by the University of California Berkeley Student Chapter of the Earthquake Engineering Research Institute during the 2015-2016 academic year.

MISSION & GOALS

The purpose of the EERI Berkeley Chapter is to support the main EERI society on advancing the science and practice of earthquake engineering, improving the understanding of earthquakes and their consequences and promoting measures to reduce the harmful effects. We organize various academic and social events on and off campus, including talks and seminars given by invited speakers, outreach activities to K-12 schools and earthquake reconnaissance activities when possible.

MEMBERSHIP

The University of California Berkeley Student Chapter had a total of 37 members in 2015-2016.

OFFICERS

The Board consisted of the following members:

Role	Name	EERI Member Number	Email	Student Status
President	Xin(Cindy) QIAN	18652	cindyqian@berkeley.edu	Graduate student
SDC Captain	Lillian Fan	16656	lillianfan@berkeley.edu	Undergraduate student

Board meetings were held at the beginning of the Fall 2015 and Spring 2016 semester.

FACULTY & INDUSTRYADVISORS

Prof. Abolhassan, Aastaneh-Asl (astaneh@berkeley.edu) – University of California, Berkeley

MEMBERS

A complete list of members is shown below.

Name	EERI Member Number	Email	Student Status
Xin(Cindy) QIAN	18652	cindyqian@berkeley.edu	Graduate student
Shanshan WANG		shanonwang@berkeley.edu	Graduate student
Barbara Simpson		simp7@berkeley.edu	Graduate student
MARISSA LOUISE SHEA		mIshea@berkeley.edu	Graduate student

JIA SHEN		shenj1@berkeley.edu	Graduate student
Jorge Luis ARCHBOLD		jarchbold@berkeley.edu	Graduate student
DANIELA MARIA MARTINEZ LOPEZ		danielam@berkeley.edu	Graduate student
SAM ZABB-PARMLEY		zabb-parmleys11@berkeley.edu	Graduate student
Michael Daciolas		michaeldaciolas@gmail.com	Graduate student
KAREN WANG		wangka@berkeley.edu	Graduate student
Lillian Fan	16656	lillianfan@berkeley.edu	Undergraduate student
Judy Guo		judyguo@berkeley.edu	Undergraduate student
Henry Teng	16665	hteng1995@berkeley.edu	Undergraduate student
Jordan Gilles	16668	ygilles@berkeley.edu	Undergraduate student
Mairead Montague	17716	mairead_montague@berkeley.edu	Undergraduate student
Hang Qin	17793	kimmy.qin@berkeley.edu	Undergraduate student
Michael Hui	18558	michael.hui@berkeley.edu	Undergraduate student
Max Jung	18591	jung.moonki94@berkeley.edu	Undergraduate student
Alyssa Yu	17783	yugotalyssa@berkeley.edu	Undergraduate student
Kenzo Horiuchi		k.horiuchi@berkeley.edu	Undergraduate student
Ash Razavian	18577	anoushcamille@berkeley.edu	Undergraduate student
Samantha Cristol	18578	slcristol@berkeley.edu	Undergraduate student
Priya Dewan	18576	priyadewan@berkeley.edu	Undergraduate student
Monica Liu	18553	monicayliu@berkeley.edu	Undergraduate student
Dylan Kato	18695	dkkato@berkeley.edu	Undergraduate student
Stephen Shelnutt	18487	sshelnutt@berkeley.edu	Undergraduate student
Julia Welsch	17798	hwelsch@berkeley.edu	Undergraduate student
Miguel Bernabe	18492	miguebernabe@berkeley.edu	Undergraduate student
Joshua Rojo	18583	joshro455@berkeley.edu	Undergraduate student
Kevin Mahoney	18485	kevinliumahoney@berkeley.edu	Undergraduate student
Timothy Huang		timothe5@berkeley.edu	Undergraduate student
Alina Zaki	18691	alinazaki@berkeley.edu	Undergraduate student
Raunak Singh		raunaks@berkeley.edu	Undergraduate student
Alex Dang	18544	alex dang@berkeley.edu	Undergraduate student
Stella Te	18495	stellate@berkeley.edu	Undergraduate student

Jono Disenhof	18692	jdisenhof@gmail.com	Undergraduate student
Jacob Ybarra	18579	ybarrajacob7@berkeley.edu	Undergraduate student

BUDGET & FINANCIALS

List any financial sponsors of your chapter.

Sponsor Name/Organization	Contact Person	Amount
Left over from last year		\$270.00
EERI NC Chapter	zsaiyed04@gmail.com	\$145
UC Berkeley ASUC	asuc@berkeley.edu	\$4196.30
UC Berkeley CEE JFC	ceejfc@berkeley.edu	\$2830.00

CHAPTER ACTIVITIES

Describe chapter meeting activities including, at a minimum, a summary statement of the meetings held during academic year, giving the date of each, the attendance, the principal meeting activity, the invited speaker (if there is one) and his or her subject, and any other pertinent information about the meeting activity. Consider including images for each activity in this section, and consider adding any fliers, documents or other supporting information in an appendix as needed. The section headers below are intended to be a guide to help you organize information about your activities, however feel free to edit them as necessary to best reflect your chapter's activities.

REGULAR CHAPTER MEETINGS

One chapter meeting was held each semester to discuss the plans of activities for the corresponding semester. The major activity for graduate students this year is the pilot School Earthquake Safety Initiative school outreach program and for undergraduate students is the Seismic Design Competition.

FRIEDMAN FAMILY VISITING PROFESSIONAL or DISTINGUISHED LECTURE VISIT

Unfortunately, EERI cannot accommodate for our chapter this year, but we will continue to apply.

{EERI Student Chapter Special Seminar}

Seismic Behavior of Skyscrapers and Long Span Bridges subjected to Long Distance Earthquakes

By Prof. Abolhassan, Astaneh-Asl

12-1pm, Sept 2, 2016 (Participants: approximately 40)

The research shown in this presentation focus on the effects of far-field ground motions on the response of long period structures such as long span bridges and tall buildings. The research indicated that weak far field ground motions can trigger larger responses than strong near-field ground motions to structures with relatively long period. (These studies were also presented as a poster in the EERI Annual Meeting 2016 in San Francisco).

{School Outreach Activities to K-12 students}

Thanks for the organizing efforts by Heidi Tremayne and Faith Silva, we were able to participate as one of the pilot Universities in the K-12 school outreach program for 4th grade. We had recruited a total number of ten

graduate student volunteers, approximately half PhD students and half M.S. students. So far, we had completed four school visits, each visit contains two sessions (about 2 hr) that are held in two consecutive weeks. The first session mainly focuses on key structural design and earthquake safety concepts supported by hands-on K-Nex structural workshop activities; the second session focuses on engineering design process followed by a design competition with electronic shaking table tests, to test their understanding and bring in excitement towards engineering in the students.

All of our volunteers enjoyed this outreach activity and the interaction with the students a lot. A lot of them, even some of them are graduating this summer, expressed interest in continuing participation in the outreach for the coming semester.



Photo: students watching the shaking table test for one of the groups

This is an extremely meaningful program for both the K-12 school students and our volunteers. We will definitely continue with the classroom visits and help to improve the lecture design from the feedbacks from the teachers and the students.

{Invited Talk by Stanford EERI Chapter}

Proposed by the Stanford Chapter, we are working together with our friendly neighbor over the bay on a new seminar series called 'Berkeley-Stanford Student Chapter Seminar Series'. We wish to have exchanged student speakers from each university on a regular basis to encourage communication and learning opportunities between the two institutes. This talk, hopefully, will become the initiating talk of the seminar series.

The talk will be given by a post-doc researcher Maryam Tabbakhha from UC Berkeley on **Failure Analysis of Flood Collapse of Texwash Bridge**. The talk is scheduled to be on May 13, 2016.

SEISMIC DESIGN COMPETITION TEAM

The purpose of the UC Berkeley Seismic Design Team is to provide civil engineering undergraduate students with an opportunity to engage in a hands-on project designing and constructing a cost-effective frame building to resist seismic loading. Participating in the team provides students with ample design, analysis, and construction experience they may not have access to in classes alone.

SDC Team Members

A complete list of members is shown below.

Name	EERI Member Number	Email	Role
Lillian Fan	16656	lillianfan@berkeley.edu	Project Manager
Judy Guo		judyguo@berkeley.edu	Assistant Project Manager (F)
Henry Teng	16665	hteng1995@berkeley.edu	Physical Testing Manager
Jordan Gilles	16668	jpgilles@berkeley.edu	Design Manager
Mairead Montague	17716	mairead_montague@berkeley.edu	Assistant Construction Manager
Hang Qin	17793	kimmy.qin@berkeley.edu	Treasurer
Michael Hui	18558	michael.hui@berkeley.edu	Laser Cutting Specialist
Max Jung	18591	jung.moonki94@berkeley.edu	Assistant Design Manager
Alyssa Yu	17783	yugotalyssa@berkeley.edu	Construction Manager
Kenzo Horiuchi		k.horiuchi@berkeley.edu	SAP Manager
Ash Razavian	18577	anoushcamille@berkeley.edu	Assistant Project Manager (S)
Samantha Cristol	18578	scristol@berkeley.edu	Member
Priya Dewan	18576	priyadewan@berkeley.edu	Member
Monica Liu	18553	monicayliu@berkeley.edu	SAP Lead
Dylan Kato	18695	dkkato@berkeley.edu	SAP Lead
Stephen Shelnutt	18487	sshelnutt@berkeley.edu	SAP Lead/Career Fair Chair
Julia Welsch	17798	jwelsch@berkeley.edu	Member
Miguel Bernabe	18492	miguebernabe@berkeley.edu	Info Sessions Chair
Joshua Rojo	18583	joshro455@berkeley.edu	Member

Kevin Mahoney	18485	kevinliumahoney@berkeley.edu	Member
Timothy Huang		timothh5@berkeley.edu	Member
Alina Zaki	18691	alinazaki@berkeley.edu	Member
Raunak Singh		raunaks@berkeley.edu	Member
Alex Dang	18544	alex dang@berkeley.edu	Member
Stella Te	18495	stellate@berkeley.edu	Member
Jono Disenhof	18692	jdisenhof@gmail.com	Member
Jacob Ybarra	18579	ybarrajacob7@berkeley.edu	Member

SDC Team Financial Sponsors

A list of financial sponsors for the SDC team.

Name	Email	Amount	Note
EERI NC Chapter	zsaiyed04@gmail.com	\$145	
UC Berkeley ASUC	asuc@berkeley.edu	\$4196.30	
UC Berkeley CEE JFC	ceejfc@berkeley.edu	\$2830.00	

Team results and lessons learned

Describe the results of your SDC Team. How did your structure perform in the competition? Include any photos. Describe lessons learned about the processes and areas for future improvement. Note this report will be published live on the EERI website, so avoid any mention of ideas for future designs that could compromise the competitiveness of your team in coming years.

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<http://www.ce.berkeley.edu/news/1236>

The Cal Seismic Team competed against 33 other teams in the EERI 2016 Undergraduate Seismic Design Competition on April 5-8. They placed 2nd overall, just missing the 1st place finish that went to Technical University of Cluj Napoca. See results.

The team was pleased with their 1st place in the Analysis Predictions category, as they really worked to improve in this area from last year.

But the big win was receiving the Degenkolb Structural Innovation Award, which is given to the team that makes the best use of technology or structural design to resist seismic loading.

They received the Degenkolb for their model's innovative column design and low construction weight.

"Going for a model with an extremely low weight was our secret strategy this year," said Lillian Fan, Project Manager.

"We optimized our design to use extremely thin, small pieces (such as braces that were 1/16" thick) while maintaining the structural strength of the building. Our building weight came out to a mere 0.95 LB!"

To give an idea of how light that is, the previous 2 models from 2014 and 2015 came out to be 3.40 lb, and 1.85 lb, respectively. Reducing the weight is a way to reduce the construction cost as well as the seismic cost, giving the team an advantage score-wise.

"It also gave us a fun challenge that kept us on our toes and stretched us in terms of quality control, scheduling, and communication," said Fan.

The judges and other teams were surprised to see that Berkeley's <1 lb building was not only able to survive, but that it could perform extremely well throughout the ground motions.

"We were very nervous for the shaking due to our crazy low weight, but when it came to shake day, we knew we had it in the bag," said Fan.



ELECTION & ELECTION RESULTS

An election for officers for the 2016-2017 academic year will held in September 2016. The list of new officers and contacts will be updated as soon as they are available.

FEEDBACK FOR EERI

This section is for questions, requests, and/or feedback directed toward EERI or EERI staff.

LIST OF ATTACHMENTS

Included at the end of this report are various attachments to supplement the information included above. A list of the attachments is included below:

- Item 1, i.e. flier for the EERI Student Chapter Special Seminar by Prof. Astaneh

Presents

Seismic Behavior of Skyscrapers and Long Span Bridges subjected to Long Distance Earthquakes

Abolhassan Astaneh-Asl, Ph.D., P.E., Professor

Department of Civil and Environmental Engineering
University of California, Berkeley, 94720 USA



**Wednesday, September 2, 2015
12:00-1:00 pm in 534 Davis Hall**

Abstract:

The studies summarized in this paper focus on the effects of *far-field* ground motions on the response of long period structures such as long span bridges and tall buildings. In the studies two long span suspension bridges and two tall office buildings, with their fundamental period ranging from 5.9 to 17.5 seconds were subjected to a strong near field and a relatively weak far field ground motions and their response were studied. All structures were steel structures. The research indicated that the force and displacement response of these long period structures to far field, but weak ground motion were far greater than the response of the same structures to much stronger ground motion recorded close to the epicenter. The main parameter affecting the response was the long dominant period of vibration for far field motions being close to or longer than the fundamental period of vibration of the structures.

Speaker: Dr. Astaneh is a Professor of Structural Engineering at UC Berkeley and a Registered Professional Engineer. His areas of research, design practice and teaching are behavior and design of steel and composite buildings, bridges and other structures and protection of structures against earthquakes, seismic, blast, wind and impact.