

# 2018-2019 ANNUAL REPORT

## University of Notre Dame Student Chapter of the Earthquake Engineering Research Institute



Report Date: May 1, 2019

This report summarizes the membership and activities conducted by the University of Notre Dame Student Chapter of the Earthquake Engineering Research Institute during the 2018-2019 academic year.

### MISSION & GOALS

In light of the recent disasters, which have claimed so many lives and destroyed so much property, it is essential that all engineers become aware of the increasing threats of natural hazards and techniques to mitigate them. While research at the University of Notre Dame focuses in many of these areas, a vast majority of the undergraduate population is unaware of such efforts. Thus, EERI@UND was established to provide the next generation of practicing engineers with a venue to discuss the latest developments in the areas of Earthquake Engineering to better prepare them for the challenges which will await them in their careers.

Awareness, however, should not be limited solely to engineers as earthquakes affect every aspect of human life. Thus EERI@UND will also extend its mission to educate and increase awareness of natural disasters, especially earthquakes, and mitigation techniques across this campus and the wider community.

Our parent organization, EERI, is a nationally recognized institution dedicated 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.

### MEMBERSHIP

The University of Notre Dame Student Chapter had a total of 6 members in 2018-2019.

### OFFICERS

The Board consisted of the following members:

<b>Role</b>	<b>Name</b>	<b>EERI Member Number</b>	<b>Email</b>	<b>Student Status</b>
President	Dimitrios Patsialis	19567	dpatsial@nd.edu	Graduate student
Vice President	Karen Angeles	29895	kangeles@nd.edu	Graduate Student



**FACULTY & INDUSTRY ADVISORS**

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**MEMBERS**

A complete list of members is shown below.

<b>Name</b>	<b>EERI Member Number</b>	<b>Email</b>	<b>Student Status</b>
Robert Devine	18215	rdevine@nd.edu	Graduate student
Dimitrios Patsialis	19567	dpatsial@nd.edu	Graduate Student
Yenan Cao	18263	ycao2@nd.edu	Graduate Student
Karen Angeles	29895	kangeles@nd.edu	Graduate Student
Christianos Burlotos	29944	Christianos.A.Burlotos.1@nd.edu	Graduate Student
Aikaterini Kyprioti	19687	akypriot@nd.edu	Graduate Student

**CHAPTER ACTIVITIES**

**REGULAR CHAPTER MEETINGS**

Meetings: September 5, 2018; October 3, 2018; January 18, 2019; April 26, 2019

During our meetings throughout the year, the goals that the group wanted to accomplish throughout the academic year were discussed. The group decided that they wanted to focus a lot of their efforts on community outreach. At the meetings, different community outreach programs were developed and the local schools that we would work with were determined. The student chapter was very interested in hosting again a Friedman Family Visiting Professional, and discussions on who our student body would find most beneficial were held. There were discussions in the meetings about attempting to gain interest in the undergraduate Seismic Design Competition. In the end, we were unable to garner enough support, though we feel if we start promoting it sooner there may be interest next year.

## FRIEDMAN FAMILY VISITING PROFESSIONAL or DISTINGUISHED LECTURE VISIT

Although our student chapter was really interested in bringing a visiting professional for a third consecutive year, EERI could not accommodate our request, due to the fact that the institution was unable to match our preferences with an available visiting professional. Next year, our student chapter would like to continue the participation in this program, which is beneficiary of all our graduate and undergraduate students and it is the best way of promoting knowledge in the field of earthquake engineering in our university.

## Shakes and Quakes (Sept. 13<sup>th</sup> and Oct. 3<sup>rd</sup>, 2018)

The Shakes and Quakes program was completed for the third consecutive year with Avilla Elementary School. For this program, on September 13<sup>th</sup>, three graduate students visited Avilla Elementary school and presented to the 4<sup>th</sup> grade students what earthquakes are, what causes them to occur, and how we build buildings to survive ground shaking. After the presentation, the students were divided into teams of 4 or 5 students and they were provided Legos to build skyscrapers that would be put to the test of ground shaking. Each team had a builder, engineer, architect, and owner, and the goals were to build a building which was profitable (floor space and window space on high floors) and could survive ground shaking. The students worked on their buildings as part of their curriculum for two weeks and then brought their buildings to the University of Notre Dame. There, the buildings were tested using our shake table, and the strongest building was awarded. Other awards for best design and most profitable were also awarded. This initiative will hopefully continue this fall and is only possible through the help of the teachers at Avilla Elementary, including Shay Amstutz, who coordinated their side of the event wonderfully.



## Northpoint Elementary Science Night (Jan. 25<sup>th</sup>, 2018)

Our student chapter visited Northpoint Elementary School in South Bend, IN and participated in their Science Night events. We explained the concepts and advantages of a tuned mass damper by demonstrating the response of a high-rise building model with and without a simplified tuned mass damper (pendulum). Also, our chapter demonstrated the effects of a sloshing damper (tank with water) in reducing seismic risk and also the effect the height of a building has on the response due to a sinusoidal ground movement (resonant response), using our Shake Table.



Webelos at Notre Dame for shake table demonstration (Febr. 27<sup>th</sup>, 2019)

Webelos are boy scouts that they visited the University of Notre Dame, and more specifically the department of Civil and Environmental Engineering and Earth Sciences, in order to get informed about Civil Engineering and Earthquake Engineering from our EERI members and from Dr. Kevin Walsh, assistant teaching professor at Notre Dame. The boys also participated in various activities, such as designing and building a masonry wall, made of Lego bricks, and testing it with our shake table and also constructing a K'NEX tower and measuring the lateral deflection of it, using our equipment.



## ELECTION & ELECTION RESULTS

An election for officers for the 2018-2019 academic year was held in April 2019. The table below shows the new officers appointed to the Chapter board who will take office on August 2019.

<b>Role</b>	<b>Name</b>	<b>EERI Member Number</b>	<b>Email</b>	<b>Student Status</b>
President	Karen Angeles	29895	kangeles@nd.edu	Graduate Student
Vice President	Aikaterini Kyprioti	19687	akyriot@nd.edu	Graduate student



## FEEDBACK FOR EERI

The University of Notre Dame student chapter would like to take this opportunity to thank EERI for their support of our chapter. Our participation the last few years in the Friedman Visiting Professional Program has been very rewarding. In the upcoming years, we would like to continue our participation in this program and try to promote more EERI sponsored programs, such as the SDC.