

# 2017-2018 ANNUAL REPORT

## Dalian University of Technology Student Chapter of the Earthquake Engineering Research Institute

Report Date: May 13, 2018



This report summarizes the membership and activities conducted by the Dalian University of Technology Student Chapter of the Earthquake Engineering Research Institute during the 2017-2018 academic year.

### MISSION & GOALS

We offer:

Bridges among professors, engineers and students

Greater platform to enhance abilities

Broader international view of civil engineering students

### MEMBERSHIP

The Dalian University of Technology Student Chapter had a total of 7 members in 2016-2017.

### OFFICERS

The Board consisted of the following members:

Role	Name	EERI Member Number	Email	Student Status
President	WEN XIN	19142	Xinwen1998@mail.dlut.edu.cn	Undergraduate student
Vice President	XIANGYU KONG	19739	<a href="mailto:846495321@qq.com">846495321@qq.com</a>	Undergraduate student
Vice President	PENG TANG	19139	1287662877@qq.com	Undergraduate student
Secretary	SIGE YANG	724394862	<a href="mailto:794955982@qq.com">794955982@qq.com</a>	Undergraduate student

Board meetings were held per month (except school vacation)

Latest board meeting: May 6, 2018

### FACULTY & INDUSTRY ADVISORS

List advisors with contact information and affiliation.

#### Zheng HE

Professor, PhD Student advisor, Dean of Civil Engineering of DLUT

[hezhen@dlut.edu.cn](mailto:hezhen@dlut.edu.cn)

Responsible for total issue of student chapter

## Yao CUI

Associate Professor, Master Student advisor

[cuiyao@dlut.edu.cn](mailto:cuiyao@dlut.edu.cn)

Assistance for structure design

## Luyu LI

Associate Professor, PhD Student advisor

[Liluyu@dlut.edu.cn](mailto:Liluyu@dlut.edu.cn)

Assistance for structural dynamics, finite element method

## Bohan XU

Associate Professor, Master Student advisor

[bohanxu@dlut.edu.cn](mailto:bohanxu@dlut.edu.cn)

Assistance for wooden and timber structure

## MEMBERS

A complete list of members is shown below.

Name	EERI Member Number	Email	Student Status
WEN XIN	19142	Xinwen1998@mail.dlut.edu.cn	Undergraduate student
XIANGYU KONG	19739	846495321@qq.com	Undergraduate student
PENG TANG	19139	1287662877@qq.com	Undergraduate student
WENBO HU	724394861	huwenbodlut@qq.com	Undergraduate student
ZHIHANG GUO	19745	G2021907251@163.com	Undergraduate student
SIGE YANG	724394862	<a href="mailto:794955982@qq.com">794955982@qq.com</a>	Undergraduate student
MAIMOUNA THIAM	724394859	Amatou95@gmail.com	Undergraduate student

## BUDGET & FINANCIALS

For the regular activities, such as inviting professors, preparation of seismic design competition, the fee will be covered by the School of Civil Engineering.

For social activities, the finance department of our student chapter is responsible for the usage of the chapter fee. A reference value of the chapter fee is CNY100 per person per year.

## CHAPTER ACTIVITIES

### REGULAR CHAPTER MEETINGS

Regular chapter meetings are held twice per month on average. The focuses of these meetings are among the preparation of Seismic Design competition, the recruiting of new members and the publicity of our student chapter (via Wechat).

### TARGETED LECTURES ON CIVIL REALTED CONTENT

With the assistance of the school, we are proudly invited several specialists in engineering mechanics, model designing and the advisor of our team participant in SDC before.



Jason McCormick, University of Michigan

Provided study experience and extracurricular activities, including the seismic model competition

Tao Wang, Institute of Engineering Mechanics

Provided the lecture on the frontier development or earthquake resistance research

Dimitrios Konstantinidis McMaster University

Advisor of EERI in McMaster University, provided some suggestions on the preparation of SDC

For extension of integrated knowledge on the civil engineering, we are also trying to invite more professors inside our school who will provide us will vivid instructions on the relative field.



Luyu Li, who is the associate professor with interests on the numerical simulation and structural dynamics, provided us with a basic and brief introduction on the dynamics analysis and MATLAB application on civil structure analysis

Shengshan PAN, who is an engineer and have abundant experience on the real construction and bridge design, provided us with a lecture on the design of trusses.

Linsheng HUO, who has the research interest on the seismic design, provided us with the basic principles on the anti-earthquake design and some tips on model making

## RECRUITING CEREMONY

On October 15<sup>th</sup> 2017, we held the meeting of recruiting members, with the aim to enlarge our group. We invited Professor He Zheng, who is the dean of civil engineering while the advisor of our student chapter to help us with the work. We mainly introduced the benefit for EERI student chapter, what the Seismic Design Competition is like and our preparation. We were proud that the meeting invited around a hundred undergraduate students and have around 40 applicants.



#### SOFTWARE PREPARATION

Realizing the importance of software applied in civil engineering analysis, we invited LI luyu, the advisor of our chapter, to provide special lecture on Matlab and other analysis software. Based on the software laboratory of our department, we are enjoying the convenient learning software installed on the computer. Based on the practical application in analysis of beams and trusses, we learned the programming of nodes, bars, stiffness matrix and the solution process. We are benefit from the learning and solving complex structures, which will be helpful for preparing EERI seismic design competition.



#### VISIT TO CIVIL ENGINEERING COLLEGE, HOHAI UNIVERSITY

We also pay attention to the important to communicate with other school. On 22th October, 2017, we were happy to pay a visit to Hohai University. We had a great experience in the laboratory including the lab of geotechnical engineering and have a deep conversation with the classmates on the learning experience in civil engineering major. We were also impressed in the competition achievement and model of their university and the preparation for competitions. The assistance from senior students on the lower grade ones will bring them a shortcut for a better design.



## FIELD TRIP

For better understanding and application of the knowledge learned, on September 2017, we arranged a visit to the construction site located near the school. It is an apartment under constructions. The visit team mainly recorded the major steps of construction, the steel bar arrangement and concrete placing. Accompanied with the manager of the site, we had a better understanding of the work of that construction. Here attached the photo we took at the site.



## 2017 IDEERS Seismic Competition

On September 20<sup>th</sup>-22<sup>nd</sup>, 2017, on behalf of Dalian University of Technology, we attended IDEERS 2017 Dynamic Structure Competition in Taipei. Similar to the seismic design competition of EERI but in a small scale, the represent team made the model on site. After the shaking test, we bear the loads of 500 gal and won the quake-resistance prize in the end.



## SEISMIC DESIGN COMPETITION TEAM

For the first time of our student chapter while the first team participating in EERI Seismic Design Competition, Team of Dalian University of Technology, which consists of 6 students from Mainland China, Macau SAR and Senegal has been working together for months on such a project.

Handing the proposal in December, 2017, we were glad to receive the invitation of SDC in the early January. In the proposal, we emphasized on the research on geological condition, economy, eco-friendly and vice versa. We gave a simple design draft according to the competition rule, and we made a research plan for our teamwork. According to our plan, we bought the wood bars and plates in terms of our design draft.

At first, several meetings were held to discuss about the initial model plan. Two team members started to draw the draft of our model in AutoCAD and Sketch-up. It took us a large amount of time to finish the first model. The main reason was that we were not familiar with the procedure to make the model and the requirements for the competition.

It was also an issue understanding the basic concepts of high rise building and earthquake engineering because most of our team members did not take the courses yet. To help us with design, the dean of Civil Engineering Department of DUT, Professor He, stepped out to give us exclusive lectures about structure

engineering since he tutors himself high rise building course. Also, the timber structure professor taught us the importance of experiments and operations for material properties. And professional knowledge in dynamic structures was applied in the calculation procedures for our models. Those lectures made quite a difference to the conception of structure and model designing. From there the realization of this project was clear to us. We spent multiple nights building up our 14 stories building as it was scheduled each week.

Along the process, we learnt to harmoniously work together, to improve our language skills and efficiency. We also used the SAP 2000 to test the damping reaction of designed model. In addition, shaking table test was conducted after finishing the first model to check whether the model had enough strength to resist the assuming earthquake. In April, we started to make the second model which had a special shape and thinner column compared with the last one.

Now our team is still working to make models and we cannot wait to compete in SDC.SDC Team Members

A complete list of members is shown below.

Name	EERI Member Number	Email	Role
WEN XIN	19142	Xinwen1998@mail.dlut.edu.cn	Team Captain
XIANGYU KONG	19739	846495321@qq.com	Outreach Manager
WENBO HU	724394861	huwenbodlut@qq.com	Model Maker
ZHIHANG GUO	19745	G2021907251@163.com	Designer
SIGE YANG	724394862	<a href="mailto:794955982@qq.com">794955982@qq.com</a>	Model Maker
MAIMOUNA THIAM	724394859	Amatou95@gmail.com	Designer

### Team results and lessons learned

Since we are still preparing for the coming event, we are trying our best for modified the design of structure, however, we have already improved a lot on the skill of model making, capture the knowledge about the structural dynamics, numerical simulation and basic hand calculation of natural frequency and response.

We are quite optimize with the result of coming event and the great opportunity of communication with the student from all countries.

### ELECTION & ELECTION RESULTS

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

Role	Name	EERI Member Number	Email	Student Status
President	WEN XIN	19142	Xinwen1998@mail.dlut.edu.cn	Undergraduate student
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