

2015-2016 ANNUAL REPORT

University of Toronto Student Chapter of the Earthquake Engineering Research Institute



Report Date: May 9, 2016

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

MISSION & GOALS

The University of Toronto Student Chapter aims to promote the advancement and study of earthquake engineering by creating a connected community of undergraduates, graduates, professors, industry members, and the community at large through chapter activities. Our mission statement echoes the objectives of EERI, which are to “reduce earthquake risk by (1) advancing the science and practice of earthquake engineering, (2) improving understanding of the impact of earthquakes on the physical, social, economic, political, and cultural environment, and (3) advocating comprehensive and realistic measures for reducing the harmful effects of earthquakes.”

MEMBERSHIP

The University of Toronto Student Chapter had a total of 16 members in the 2015-2016 academic year.

OFFICERS

The Board consisted of the following members:

Role	Name	EERI Member Number	Email	Student Status
President	Giorgio Proestos	18722	giorgio.proestos@mail.utoronto.ca	Graduate
VP Finance	Jeffrey Salmon	18744	jeff.salmon@mail.utoronto.ca	Graduate
VP Communications	Anca-Cristina Jurcut	14626	anca.jurcut@mail.utoronto	Graduate
Outreach Director	Edvard Bruun	*	edvard.bruun@mail.utoronto.ca	Graduate
Undergraduate Liaison	Allan Kuan	18823	allan.kuan@mail.utoronto.ca	Graduate

*EERI ID# cannot be read off of membership receipt because it is cut off

FACULTY & INDUSTRY ADVISORS

Industry Advisor: Amir Fathieh (Young Professional Member) | afathieh@stephenson-eng.com

Faculty Advisor: Professor Constantin Christopoulos | c.christopoulos@utoronto.ca

MEMBERS

A complete list of members is shown below.

Name	EERI Member Number	Email	Student Status
David Gerhardt	18172	david.gerhardt@mail.utoronto.ca	Undergraduate
Cora Pulnicki	18176	cora.pulnicki@mail.utoronto.ca	Undergraduate
Dennis Wu	18181	dennisxu.wu@mail.utoronto.ca	Undergraduate
Patrick Loa	18273	patrick.loa@mail.utoronto.ca	Undergraduate
Lucy Yan	18180	lucyy.yan@mail.utoronto.ca	Undergraduate
Liam MacKichan	18266	liam.mackichan@mail.utoronto.ca	Undergraduate
Xiao (Helen) Wang	18316	xiaofan.wang@mail.utoronto.ca	Undergraduate
Hugo Vieira	18593	hugo.vieira@mail.utoronto.ca	Undergraduate
Ryan Islip	18188	ryan.islip@mail.utoronto.ca	Undergraduate
Giorgio Proestos	18722	giorgio.proestos@mail.utoronto.ca	Graduate
Anca-Cristina Jurcut	14626	anca.jurcut@mail.utoronto	Graduate
Jeffrey Salmon	18744	jeff.salmon@mail.utoronto.ca	Graduate
Allan Kuan	18823	allan.kuan@mail.utoronto.ca	Graduate
Edvard Bruun	*	edvard.bruun@mail.utoronto.ca	Graduate
Kyle Tousignant	18724	kyle.tousignant@mail.utoronto.ca	Graduate
Cameron Ritchie	18723	cameron.ritchie@mail.utoronto.ca	Graduate

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BUDGET & FINANCIALS

The University of Toronto Student Chapter does not have any financial information as we have not had any expenses or funding this year.

CHAPTER ACTIVITIES

In this inaugural year of the chapter a large part of effort and time has been spent to recruit members, establish a vision for the chapter and begin to develop a network of participants. The goal was to bring together graduate students, undergraduates and industry members to foster an environment of earthquake engineering at the University. To accomplish this, the chapter held meetings to establish direction. This took place with the aid of the faculty advisor. It was determined that the main avenue and forum for the EERI to achieve its goal would be through the lectures held by both industry members and academics. The intention of this was to foster a network and means of communication between industry and academics. The undergraduate seismic design competition was a means of introducing undergraduates at the University of Toronto with the idea of earthquake engineering. The competition also helped provide a mechanism for knowledge transfer from graduates and undergraduates. Meetings took place to help introduce basic concepts of earthquake engineering, such as the idea of lateral load resisting systems and how they work with gravity systems, modeling seismic behaviour, etc. This relationship culminated in a small shake table test of a prototype balsa structure.

REGULAR CHAPTER MEETINGS

Although many informal meetings were held prior to January 2016, the first official meeting was held January 28, 2016. This was the first opportunity to actually have sufficient quorum to warrant a meeting (this was the inaugural year of the chapter). The meeting was focused on introducing the mission statement and constitution of the chapter to the team and to establish an action plan for developing a vision of the chapter. A discussion of roles, the undergraduate competition and chapter identity were discussed. The next meeting occurred on February 11, 2016. This meeting established that the main avenue of involvement the EERI chapter would have at the University of Toronto would be through seminars and lectures of industry and academics. The goal would be to create a network and means of communication between academics and industry members to foster a community of earthquake engineering at the University of Toronto. The meeting also established an action plan to determine who would present the first seminar and its general theme. On March 10, 2016, it was determined that David De Koning, a senior structural engineer, was available and willing to provide the inaugural seminar. The content was decided to be on understanding the idea of seismic risk and how these things differ in different design codes. April 21, 2016 marked the first seminar. A debriefing occurred April 22, 2016. The next meeting is scheduled for the last week of May 2016.

DISTINGUISHED LECTURE VISIT: DAVID DE KONING, P.ENG – April 21, 2016

The graduates were able to launch the first seminar featuring David De Koning on April 21, 2016. As a Rose School Graduate and senior structural engineer at Arup Toronto, he provided an excellent discussion on the idea of seismic risk. This concept of vulnerability and hazard, although second nature to most earthquake engineers, was valuable to many Toronto engineers who may not have been familiar with these fundamental concepts. The seminar was attended by around 30 participants. The attendees were graduate students in the department, undergraduates and several industry members. The seminar was an incredible success and the intention is to continue to bring in industry members and relevant academics to provide these seminars. The goal is to hold these seminars quarterly.

SCIENCE RENDEZVOUS – MAY 7, 2016

This year, our chapter was invited to an annual science street fair called "Science Rendezvous", which aims to increase science literacy through public engagement. At our booth, we demonstrated the basics of earthquake engineering to children of all ages through mounting structures made of Kinex pieces onto our makeshift shaketable, as pictured below. By subjecting these frames to simple lateral movement, we were able to effectively show the difference in stiffness between braced and unbraced structures. Some structures were very creatively built and our team had a great time interacting with the next generation of scientists and engineers!



SEISMIC DESIGN COMPETITION TEAM

As University of Toronto's first year competing in the EERI Seismic Design Competition, we learned a great deal about the basics of earthquake engineering through designing and constructing a 60" tall balsa wood model. With the help from industry partners and graduate student advisors, our team was able to finish 4th overall in San Francisco this year. We learned a great deal from our own performance as well as from our fellow competitors, and are looking forward to using this summer to further fine-tune our approach in design and analysis.

SDC Team Members

A complete list of members is shown below.

Name	EERI Member Number	Email	Role
David Gerhardt	18172	david.gerhardt@mail.utoronto.ca	Design
Dennis Wu	18181	dennisxu.wu@mail.utoronto.ca	Design
Cora Pulnicki	18176	cora.pulnicki@mail.utoronto.ca	Construction
Patrick Loa	18273	patrick.loa@mail.utoronto.ca	Construction
Ryan Islip	18188	ryan.islip@mail.utoronto.ca	Construction
Xiao (Helen) Wang	18316	xiaofan.wang@mail.utoronto.ca	Damping Design
Liam MacKichan	18266	liam.mackichan@mail.utoronto.ca	Co-Captain
Lucy Yan	18180	lucyy.yan@mail.utoronto.ca	Co-Captain

SDC Team Financial Sponsors

A list of financial sponsors for the SDC team.

Name	Email	Amount
Stephenson Engineering	afathieh@stephenson-eng.com	\$2000
PICCO Engineering	msalerno@picco-engineering.com	\$1000
RJC Engineers	mmoffatt@rjc.ca	\$1000
WSP MMM Group	StonehouseB@mmm.ca	\$1000
CAST CONNEX	m.gray@castconnex.com	\$1000
Entuitive	barry.charnish@entuitive.com	\$500
Round Engineering	scott.islip@roundeng.com	\$500
Konsolidated	structural@konsolidated.com	\$150

Team results and lessons learned



The University of Toronto team finished fourth overall amongst 33 international teams. Our structure performed very robustly throughout all three ground motions and thereby resulting in a relatively low annual seismic cost. In our inaugural year of competing in the SDC, we were very inspired by our fellow competitors, such as observing other team's creative architectural designs. Areas that we plan on improving upon include reducing our structure's weight as well as fine tuning our analysis methods through full scale testing at our university.

ELECTION & ELECTION RESULTS

An election for officers for the 2016-2017 academic year will be held in June 2016. Once results are finalized, a full list of names and positions will be forwarded to EERI.

LIST OF ATTACHMENTS

Included at the end of this report is a promotional poster for the aforementioned David de Koning talk.

The U ofT Earthquake Engineering Research Institute (EERI)
Student Chapter Presents

There aren't earthquakes in Toronto, are there?

A talk by

David de Koning, MSc, P. Eng
Senior Structural Engineer, Arup

Thursday, April 21 2016
12:00 - 1:00 pm
GB119

This talk is for **undergraduate** and **graduate students** with an interest in earthquake engineering, and will present the basics of how seismic risk is measured and discussed in various industries and countries.



For more information, or to join the
U ofT EERI Student Chapter, e-mail:
giorgio.proestos@mail.utoronto.ca