FRIEDMAN FAMILY VISITING PROFESSIONALS PROGRAM

Visit to University of Toronto: March 15, 2022

This report summarizes the visit of **Dr. Ezra Jampole** from Exponent that took place at the University of Toronto on March 15th, 2022.

ITINERARY OR AGENDA

The agenda below follows the events and approximate time-line of the visit.

Time	Event	Comments
9:30-10:45	Tour of the University of Toronto St. George campus.	Historic tour of the University of Toronto campus and its various landmarks.
11:00-12:30	Delivery of seminar and Q/A period.	Seminar Room: MB500 In person attendance was limited to faculty members and graduate students. Zoom alternative was offered in parallel for all other interested parties.
12:45-1:45	Lunch with EERI students and faculty.	Off campus informal lunch with graduate students and faculty.
2:00-2:45	Tour of the structural laboratory.	Lab tour was led by Mr. Pedram Mortazavi explaining the various apparatus and experiments located in the structural labs.
3:00-4:30	Presentation by graduate students on their research topics and accompanying discussion.	Presentations Room: GB217 3 graduate students each presented their research projects to Dr. Jampole for his feedback and advice followed by a brief Q/A session (30 minutes total).
4:30-5:30	Meeting with the University of Toronto seismic design chapter and consulting on their design progress.	Presentations Room: GB217 The undergraduate seismic design team presented previous work carried out and various areas of research under consideration for the seismic design competition and received Dr. Jampole's feedback.
Evening	Dinner with available EERI executive team.	Off campus informal lunch with available EERI executive team.

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER(S):

- Mr. Marawan Zaki, President, marawan.zaki@mail.utoronto.ca
- Mr. Pedram Mortazavi, Senior Advisor, pedram.mortazavi@mail.utoronto.ca

FACULTY AND INDUSTRY ADVISORS:

- Faculty Advisor: Dr. Constantin Christopoulos, c.christopoulos@utoronto.ca
- Industry Advisor: Amirahmad Fathieh, afathieh@stephenson-eng.com

VISITING PROFESSIONAL LECTURE OVERVIEW

Dr. Jampole delivered a presentation on the topic of disputes in earthquake engineering both for legal and insurance cases to an audience of roughly 19 students, staff and faculty. The presentation content featured four real world dispute cases, and through an interactive manner Dr. Jampole and the audience determined the likely cause of damage (earthquake or otherwise), the possible level of liability of the various parties, validation methods of these assumptions, and suitable proposed rehabilitations. The presentation ended with a summary of the lecture content. Finally, a brief Q/A period was had where various questions were raised by both the in attendance and virtual audiences regarding the different cases presented.

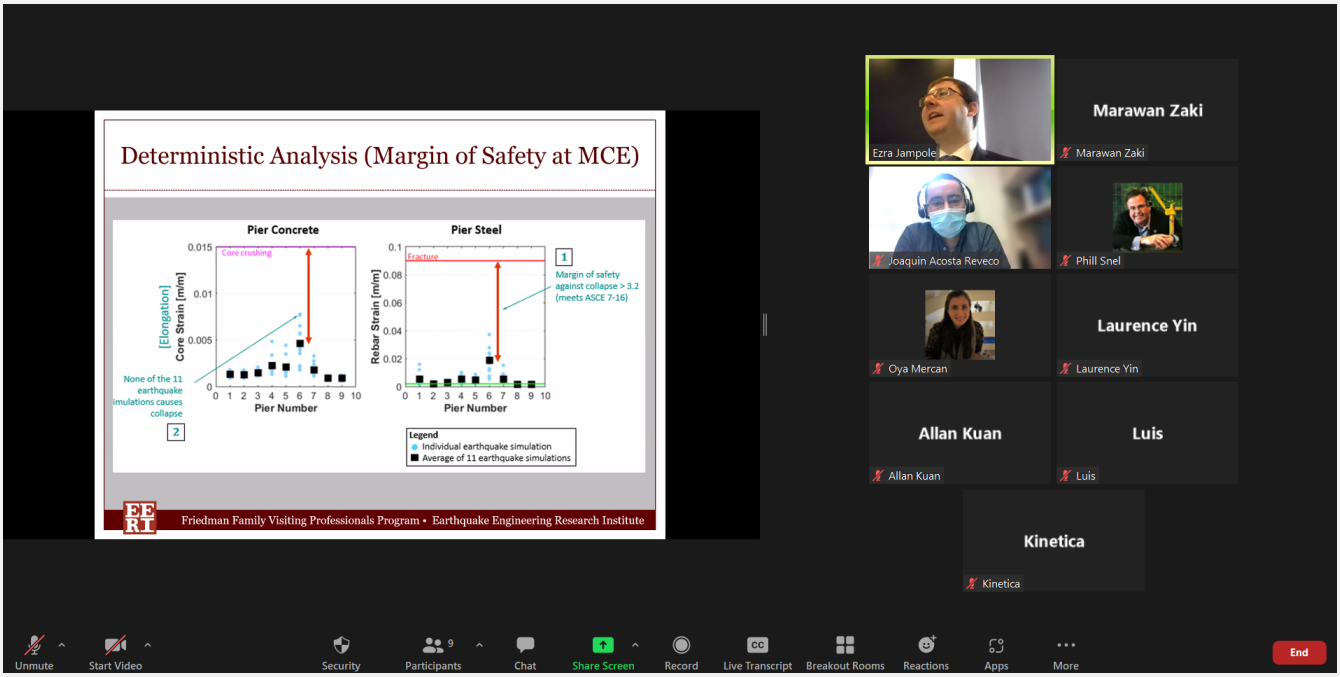

Figure 1: Virtual Audience of Dr. Jampole's Presentation

Lecture Abstract

In an ideal world, an engineer's involvement in a structure would end after construction is finished. But the reality is that many structures are subject to costly litigation or arbitration because of allegations of inadequate design or performance. Additionally, when a structure is subjected to extreme loading such as from an earthquake, insurance disputes arise regarding the source of damage and if the damage was caused by the earthquake, and who is responsible. This talk will review the types of legal disputes that structural engineers can find themselves in and how expert witnesses are used to sort through the issues and provide independent opinions. Several case studies on earthquake engineering disputes will be discussed, including: alleged reduction in the earthquake-resisting capacity of a building because of water intrusion; distinguishing between damage caused by earthquakes and caused by other actions following a large earthquake, the alleged insufficient earthquake resistant design of transportation infrastructure in a high-seismic zone, the safety of a bridge with seismic design errors, and more.

Professional Bio

Dr. Jampole is a Managing Engineer at Exponent in New York City. He specializes in risk analysis and performance of structures subjected to extreme loads such as earthquakes, wind, and flood events. He has served as a consultant on projects assessing the origin of damage to structures following natural disasters, adjacent construction incidents, corrosion and deterioration, settlement, and long-term issues. He has substantial experience investigating the engineering standard of care for complex energy and infrastructure projects.

Dr. Jampole also currently serves as an adjunct professor at the New Jersey Institute of Technology, where he teaches a graduate course on structural dynamics and researches high-performance concrete materials. He is extensively involved in the EERI through their Learning from Earthquakes Program and Younger Members Committee.

SUPPLEMENTAL ACTIVITES

University of Toronto Campus Tour

The campus tour was led by Mr. Marawan Zaki, a doctoral candidate at the University of Toronto and president of the UofT EERI Chapter. This activity provided an opportunity for leisure and learning as we walked through the University of Toronto's historic campus. During the tour, various topics were covered including the university's history, information on the University of Toronto's college systems, landmark buildings and interesting facts about them, and famous alumni. The tour concluded prior to the start of Dr. Jampole's lecture.

Laboratory Tour

The laboratory tour was led by Mr. Pedram Mortazavi, a doctoral candidate at the University of Toronto and senior advisor of the UofT EERI Chapter, and attended by Dr. Ezra Jampole and Mr. Marawan Zaki. The tour featured a walkthrough of the main structural testing facilities at the University of Toronto, which is amongst the top testing facilities in North America. During the tour Pedram described various projects being undertaken at the University of Toronto on various topics including reinforced concrete elements, lateral load resisting systems, advanced material testing, and hybrid simulation. The UT10 simulator was of particular interest to the tour due to its uniqueness and was a topic of riveting discussion with Dr. Jampole.

Figure 2: Mr. Pedram Mortazavi and Dr. Ezra Jampole in front of the UT10 Simulator

Figure 3: Mr. Pedram Mortazavi and Dr. Ezra Jampole in front of the Column Testing Frame (not pictured)

Graduate Presentations

Graduate presentations were delivered by three doctoral candidate at the University of Toronto to Dr. Ezra Jampole and their peers. Each presentation lasted roughly 20 minutes with a 10 minute question and answer period, during which Dr. Jampole provided insight and guidance on their projects. Mr. Joaquin Acosta Reveco discussed the topic of utilizing Building Information Models (BIM) to conduct economic loss assessments due to potential earthquake hazards. Mr. Luis Ardila presented his work on utilizing Viscoelastic coupling dampers for outrigger systems in supertall buildings. Finally, Mr. Pedram Mortazavi presented his work on cast steel yielding connectors for eccentrically braced frames.

Undergraduate Seismic Design Team Presentations

The final event of the day was a presentation by the executive members of the University of Toronto Seismic Design team, which competes at the EERI seismic design competition. Following a previously successful year where the UofT team completed the competition in 3rd year, the students were eager to present their work to Dr. Jampole, describe their approach to designing the structure, as well as discuss various innovative systems that they are in the process of testing to better improve their performance. Dr. Jampole, who has previous experience with the competition was able to provide various insights on their designs, provide recommendations for future competitions, and give his insight to the students on future opportunities and careers in seismic engineering.

RESULTS, FEEDBACK AND LESSONS LEARNED

Overall, the event was a success on multiple fronts. The lecture delivered by Dr. Jampole was educational and entertaining and provided students, staff, and faculty to learn about an area of engineering which is rarely showcased, forensic engineering consultation. The ancillary events provided an opportunity for both information and leisure in a more relaxed environment, and Dr. Jampole's insights for both graduate and undergraduate students were extremely impactful and helpful.

The primary challenge faced during this event was the coordination of the event due to the university's changing Covid-19 restrictions, which made it hard to coordinate the times and locations of the various activities planned. This led to a reduced attendance as fliers, emails, etc. were sent out at later than optimal dates due to us waiting for approval from various governing bodies. The executive team believes this to be a unique issue faced during this time and is sure that future events should not face such an issue.

In the future, the chapter would welcome visiting professionals presenting a variety of topics, especially those related to Dr. Jampole's presentation, including:

- Stories of success or failure of seismic systems and what we can learn from them.
- Lessons learned from post-earthquake reconnaissance and the benefit of experiential knowledge.
- Topics on base isolation and other advanced seismic force resisting systems.

ACKNOWLEDGEMENTS

The University of Toronto EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of Dr. Ezra through their Friedman Family Visiting Professional Program endowment.

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, Flier for the Event

University of Toronto
Earthquake Engineering Research Institute
Student Chapter

EERI

EERI Student Leadership Council

Dr. Ezra Jampole, Ph.D., P.E.

Managing Engineer – Exponent
Adjunct Professor – New Jersey Institute of Technology

Legal and Insurance Disputes in Earthquake Engineering

Date: Tuesday, March 15th, 2022
Time: 11:00 AM to 12:30 PM
Zoom Link: https://utoronto.zoom.us/j/86032949588

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For more information, or to join the U of T EERI Student Chapter, email: eeri@utoronto.ca

Figure 4: Flier of Dr. Jampole's Presentation