

FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM

UC DAVIS



Visit to University of California, Davis: April 30, 2021

This report summarizes the visit of Dr. Nathan C. Gould from ABS Consulting that took place at the University of California, Davis on April 30, 2021.

ITINERARY OR AGENDA

TIME:	ACTIVITY:
1:00 PM – 1:15 PM	Meeting with the student chapter leadership and faculty
1:15 PM – 1:30 PM	Break – while making sure Zoom platform is working well
1:30 PM – 2:20 PM	Guest lecture by Visiting Professional on "Enhanced Seismic Design Integrated into a Multi-Hazard Design Approach" with Q&A
2:20 PM – 2:45 PM	Extended guest lecture by Visiting Professional on earthquake reconnaissance experiences with Q&A
2:45 PM – 3:00 PM	Break
3:00 PM – 3:45 PM	Informal conversations with students about career-related questions (total of three, 15-minute time slots)

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER(S):

- Laura Hernández-Bassal, Outreach Chair, lauhernandez@ucdavis.edu
- Renmin Pretell, Co-President, rpretell@ucdavis.edu
- Ahmad Hassan, Public Relations Chair, askhassan@ucdavis.edu
- Patrick Bassal, Co-President, pcbassal@ucdavis.edu
- Dr. Sashi Kunnath, Faculty Advisor, skkunnath@ucdavis.edu

VISITING PROFESSIONAL LECTURE OVERVIEW

In his lecture, Dr. Nathan C. Gould's gave an overview of EERI's mission and explained how students and young professionals can get involved with the organization. Then he presented detailed information about extreme load events such as earthquakes, extreme wind, and blasts. He explained performance based seismic design and its progress over the years, including important codes and standards that are currently used in industry, loss assessment, and special advanced technologies that are being implemented. This presentation was followed by an interactive question and answer session.

We had between 10 to 15 active student participants throughout the event, and obtained positive feedback on both lectures presented by Dr. Gould. All of our members are grateful for his time and shared knowledge!

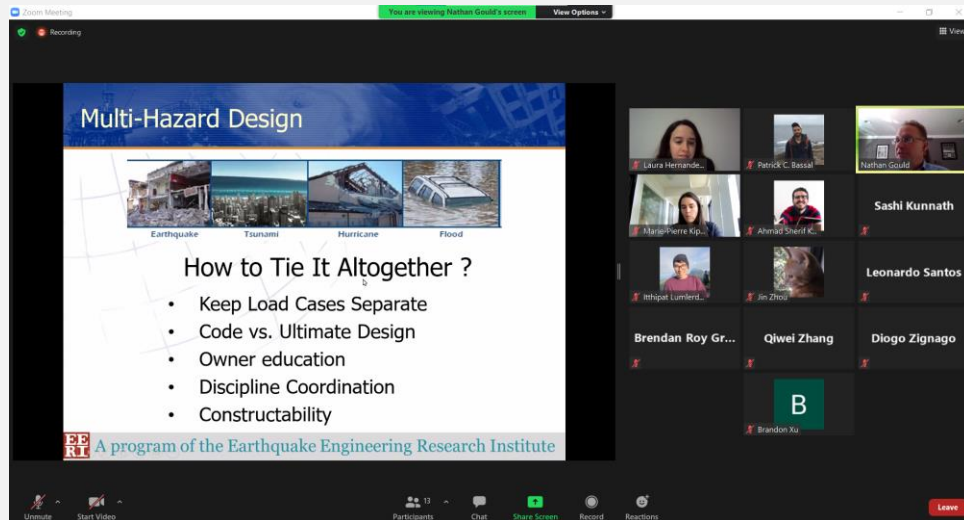


Figure 1: Screenshot during Dr. Nathan C. Gould's Lecture

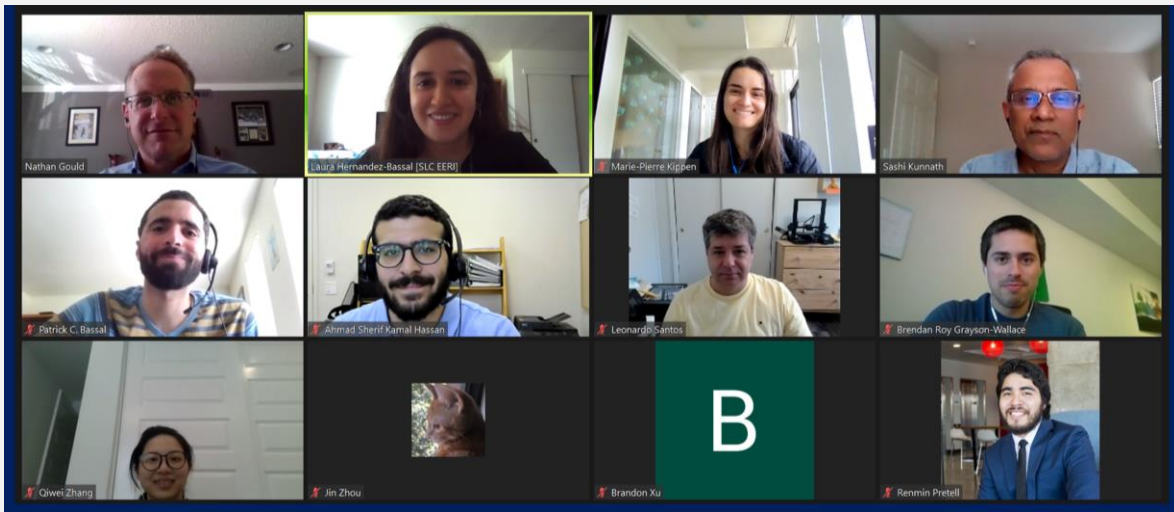


Figure 2: Group screenshot following Dr. Nathan C. Gould's Lecture and Discussion

Lecture Abstract

Multi-Hazard design, which incorporates both natural and manmade hazards, has become a popular design requirement for critical structures. While many Owners and various project team members anticipate a relatively straightforward integration of the respective hazards based on their understanding of the loads generated by the hazards, numerous complexities arise during the actual integration of a multi-hazard design approach into construction documents.

A case study of a recently designed emergency communications facility will be reviewed to understand the development of the design criteria and integration of the different conventional and extreme load criteria into a cohesive multi-hazard strategy to provide a higher level of protection for both structural and non-structural elements that are deemed to be critical to the post-event operations of the facility. Specific design features such

as enhanced vertical and lateral load paths, and attachments of critical non-structural elements will be examined to illustrate the implementation of a multi-hazard strategy in the actual structure.

Professional Bio

Dr. Nathan Gould is a Director in the ABS Group's Extreme Loads and Structural Risk Division. He is a practicing structural engineer with over 28 years of experience in the design, construction and rehabilitation of major structures in all regions of the United States. Dr. Gould is active in the utilization of performance based seismic design criteria and methodology for the design of new buildings and the retrofit of existing structures. Dr. Gould is the author of numerous technical papers including recent articles on Performance Based Seismic Design, Progressive Collapse of Structures, Managing Extreme Wind Losses, and Terrorism Risk. He has served on several technical committees and organizations related to seismic analysis and design, including the NEHRP Advisory Committee on Earthquake Hazards reduction. He has been a member of several post-earthquake reconnaissance groups, including teams that investigated damage following the 2010 Haitian and 2011 Christchurch events. Dr. Gould is a licensed Professional and Structural Engineer in several states.

SUPPLEMENTAL ACTIVITIES

Meeting with the student chapter leadership and faculty

Before his lecture, Dr. Nathan Gould was welcomed by the EERI at UC Davis chapter student board and faculty advisor. The board gave an overview of the chapter's activity during the 2020-2021 academic year. All attendees shared their research experience and background with Dr. Nathan. The final agenda for the day was summarized.

Sharing of Earthquake Reconnaissance Experiences by Visiting Professional with Q&A

Dr. Nathan C. Gould supplemented his lecture with a quick overview of some of his past earthquake reconnaissance experiences following the 2010 Haiti and 2011 Christchurch events. It was exciting and inspiring to see photos from his trips and learn about his experiences in performing reconnaissance (and red-tagging buildings) in regions affected by such tragic events. This discussion was followed with a brief Q & A session.

Informal 15-minute conversations with students about career-related questions

Dr. Nathan C. Gould participated in 3 separate 15-minute sessions with four student chapter members, to chat about career-related questions and industry practice. The first and second sessions were held individually with Marie-Pierre Kippen and Leonardo Santos, respectively. The third session was held with both Brandon Xu and Laura Hernández-Bassal.

RESULTS, FEEDBACK AND LESSONS LEARNED

- The overall process for providing the lecture went smoothly over Zoom. The event was well received by all attendees, and it was a great pleasure to have Dr. Nathan Gould virtually visit us.
- The only challenge that our chapter experienced was obtaining attendance from other members in the Civil and Environmental Engineering department (and university as a whole), outside of our typical active EERI members. The chapter Board made great efforts to widely advertise and distribute announcements for this event through faculty teaching classes relevant to the lecture topic, our department newsletter, and Twitter for the broader audience. The low attendance is likely due to the remote nature of the event, given that many students may feel "Zoom-fatigued" and are less willing to attend non-required lectures.
- As our student chapter is primarily composed of structural and geotechnical engineering students, we would like to alternate between lectures from these two disciplines. For our next FFVP event, we would be interested

in having a geotechnical engineer. Ideally, it would be someone who comes from an academic background, but can also share industry career advice.

ACKNOWLEDGEMENTS

The University of California, Davis EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the virtual visit of Dr. Nathan C. Gould 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:

- Appendix A: Event fliers
 - Item 1: Flier for Friedman Lecture (main)
 - Item 2: Flier for Friedman Lecture (abstract and bio)
- Appendix B: EERI Student Chapter at UC Davis welcome slides

APPENDIX A: EVENT FLIERS



2020-2021 EERI Friedman Lecture

Hosted by the EERI Student Chapter at the University of California, Davis

Enhanced Seismic Design Integrated into a Multi-Hazard Design Approach

Speaker:

Nathan C. Gould, D.Sc., P.E., S.E.

*Chief of Technology and General Manager, ABS
Consulting*

Date and time:

April 30, 1:30 - 2:45 p.m. (PDT)

Zoom room: [959 5298 2161](https://us02zoom.us/j/95952982161)

*Find the abstract of the talk and the speaker's
bio [here](#).*

*To talk to Dr. Gould informally about engineering or
to ask career-related questions, sign up [here](#).*





Enhanced Seismic Design Integrated into a Multi-Hazard Design Approach

*Nathan C. Gould, D.Sc., P.E., S.E.
Chief of Technology and General Manager, ABS Consulting*

ABSTRACT

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A case study of a recently designed emergency communications facility will be reviewed to understand the development of the design criteria and integration of the different conventional and extreme load criteria into a cohesive multi-hazard strategy to provide a higher level of protection for both structural and non-structural elements that are deemed to be critical to the post-event operations of the facility. Specific design features such as enhanced vertical and lateral load paths, and attachments of critical non-structural elements will be examined to illustrate the implementation of a multi-hazard strategy in the actual structure.

BIOGRAPHY

Dr. Nathan Gould is a Director in the ABS Group's Extreme Loads and Structural Risk Division. He is a practicing structural engineer with over 28 years of experience in the design, construction and rehabilitation of major structures in all regions of the United States. Dr. Gould is active in the utilization of performance based seismic design criteria and methodology for the design of new buildings and the retrofit of existing structures. Dr. Gould is the author of numerous technical papers including recent articles on Performance Based Seismic Design, Progressive Collapse of Structures, Managing Extreme Wind Losses, and Terrorism Risk. He has served on several technical committees and organizations related to seismic analysis and design, including the NEHRP Advisory Committee on Earthquake Hazards reduction. He has been a member of several post-earthquake reconnaissance groups, including teams that investigated damage following the 2010 Haitian and 2011 Christchurch events. Dr. Gould is a licensed Professional and Structural Engineer in several states.

APPENDIX B:

EERI STUDENT CHAPTER AT UC DAVIS WELCOME SLIDES



*Earthquake Engineering Research Institute
Student Chapter at University of California, Davis*



WELCOME, NATHAN GOULD

EERI @ UC Davis Officers

Patrick Bassal

Renmin Pretell

Laura Hernández-Bassal

Ahmad Hassan

April 30, 2021

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EERI UC Davis Student Chapter – Officers



Patrick Bassal
Co-President



Renmin Pretell
Co-President



Laura Hernández-Bassal
Outreach Officer



Ahmad Hassan
Public Relations Officer



Prof. Sashi Kunnath
Professor Advisor

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About EERI

- Global earthquake engineering institute established in 1948
- Dedicated to reducing earthquake risk
- Multidisciplinary: Engineers, geoscientists, social scientists, architects, planners, emergency managers, researchers, students, etc.

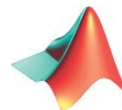


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Program of activities for 2020-2021 (Part 1)

MATLAB Boot Camp and Office Hours

- For undergrad and grad students



Technical Discussions Led by Graduate Student Members

- Exploring seismic hazard deaggregation
- NGA-West2 for the selection of time histories
- Seismic site classification
- Radiation patterns in Bay Area GMMs



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Program of activities for 2020-2021 (Part 2)

EERI Seismic Design Competition

- Undergrad team participated in the 2021 virtual competition



Science Extravaganza [Recently cancelled for 2021]

- Outreach program with middle and high school students



Program of activities for 2020-2021 (Part 3)

AISC T.R. Higgins Lecture

- Dr. Bo Dowswell – “Gusset Plates: The Evolution of Simplified Design Models”



Special Webinar from Our Industry Contact

- Alex Wright – “Applied Seismic Engineering in Northern California”



EERI Friedman Family Lecture

- Nathan Gould – “Enhanced Seismic Design Integrated into a Multi-Hazard Design Approach”



Agenda (4/29/2021)

EERI-Hosted Zoom

- 1:00 - 1:15 pm: Welcoming and meeting with the EERI chapter's board and faculty
- 1:15 - 1:30 pm: Break - while making sure zoom platform is working well
- 1:30 - 2:45 pm: Lecture with Q&A
- 2:45 - 3:00 pm: Break

UC Davis Zoom

- 3:00 - 3:45 pm: Informal 15-minute conversations about career-related questions with grad students



*Earthquake Engineering Research Institute
Student Chapter at University of California, Davis*



WELCOME, DR. NATHAN GOULD

Lecture will start at 1:30 pm

April 30, 2021