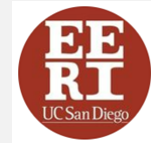


# FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM



## Visit to University of California San Diego: April 15<sup>th</sup> and 16<sup>th</sup>, 2024.

This report summarizes the visit of **Ramin Golesorkhi** from Langan that took place at the University of California San Diego on April 15<sup>th</sup> and 16<sup>th</sup>, 2024,

### ITINERARY OR AGENDA

The itinerary for April 15<sup>th</sup> was the following:

TIME:	ACTIVITY:
8:30 AM – 9:00 AM	Student Chapter Team meets, welcomes, and transports Ramin Golesorkhi to the NHERI Large High Performance Outdoor Shake Table.
9:00 AM – 10:00 AM	Tour to the NHERI Large High Performance Outdoor Shake Table.
10:00 AM – 11:00 AM	Tour to the Charles Lee Powell Lab and the Caltrans Seismic Response Modification Device (SRMD) Test facility.
12:00 PM – 1:00 PM	Main Guest Lecture: Site-Specific Time Series for Performance-Based Design and Near-Field Ground Motions.
1:00 PM – 3:00 PM	Networking reception at local restaurant.
3:00 PM – 3:30 PM	Transportation of Ramin Golesorkhi to Hotel.

The itinerary for April 16<sup>th</sup> was the following:

TIME:	ACTIVITY:
12:00 PM – 1:30 PM	Student Chapter Lunch with Ramin Golesorkhi.
1:30 PM – 2:00 PM	Transportation of Ramin Golesorkhi to campus.
2:00 PM – 3:00 PM	Second Guest Lecture: Near Field Ground Motions.
3:00 PM – 3:30 PM	Farewell and transportation of Ramin Golesorkhi to Airport.

### STUDENT CHAPTER VISIT PLANNING COMMITTEE

#### LEAD ORGANIZER(S):

- Axel Yarahuan-Chamorro, President, [ayarahua@ucsd.edu](mailto:ayarahua@ucsd.edu)
- Louis Lin, Seismic Design Competition Mentor, [lolin@ucsd.edu](mailto:lolin@ucsd.edu)
- Kaixin Chen, Social Media Director, [kac011@ucsd.edu](mailto:kac011@ucsd.edu)
- Erick Zavala-Sanchez, Seminar Director, [ezavalasanchez@ucsd.edu](mailto:ezavalasanchez@ucsd.edu).
- Dr. Gilberto Mosqueda, UCSD EERI Faculty Advisor, [gmosqueda@ucsd.edu](mailto:gmosqueda@ucsd.edu)

## VISITING PROFESSIONAL LECTURE OVERVIEW

### Main Lecture Abstract

Recent seismic design codes are Performance-Based Design (PBD). PBD is a methodology that allows for design flexibility and opportunities for enhanced structural performance and innovation. Nonlinear time series evaluations and analyses are an integral part of PBD. As such, development of site-specific time series for PBD is an important part of PBD. This talk discusses the selection, methods of development, advantages and disadvantages of different methods, and some of the issues with the development of site-specific time series.

### Second Lecture Abstract

Recent seismic design codes are Performance-Based Design (PBD). PBD is a methodology that allows for design flexibility and opportunities for enhanced structural performance and innovation. Nonlinear time series evaluations and analyses are an integral part of PBD. As such, development of site-specific time series for PBD is an important part of PBD. This talk discusses the selection, methods of development, advantages and disadvantages of different methods, and some of the issues with the development of site-specific time series.

### Professional Bio

Dr. Ramin Golesorkhi visits UCSD as part of the Earthquake Engineering Research Institute (EERI) Friedman Family Visiting Professionals Program. Dr. Golesorkhi has more than 37 years of experience in seismic analysis and foundation engineering. He is the director of seismic engineering services at Langan.

He provides engineering consultation for projects involving deep excavation, tunneling, foundation support and settlement, vertical and lateral evaluation of pile foundations, stability of earth structures, seismic soil-structure interaction, seismic hazard evaluation, ground response analysis, liquefaction potential evaluation, evaluation of ground improvement techniques, and other geotechnical and environmental projects. As a member of the Structural Engineers Association of Northern California (SEAONC) ground motion and foundation committees, Dr. Golesorkhi was involved in the recommendation of new site and near-source factors and their implementation in the 1996 SEAOC Recommended Lateral Force Requirements and Commentary and the 1997 version of the Uniform Building Code (UBC). He was a member of the Blue Ribbon panel (1998) for incorporation of the 1997 provisions of the UBC into the new San Francisco Building Code. Also, as a Blue Ribbon panel member in 2000 he consulted with and formulated City of San Francisco Department of Building Inspection's (SFDBI) requirements for Voluntary Seismic Upgrade. In 2000, as a member of advisory panel he reviewed and commented on the SFDBI's proposal for the Community Action Plan for Seismic Safety for the City and County of San Francisco. In 2006, as a member of the SEAONC seismology committee, he was instrumental in the development of the framework for the draft of the SFDBI Administrative Bulletin for the design of tall buildings in San Francisco. In 2016, he was a member of the special sub-committee of the SEAONC seismology committee charged with and review commentary to PEER TBI Ver. 2.0 document. Member of the SEAOC (statewide) ground motion subcommittee. He was a co-chair of seismic session for the 2015 Deep Foundation Institute (DFI) annual meeting in Oakland, California and co-chair of the case history session of the DFI annual conference in Seattle, Washington. He was one of the primary authors of the CTBUH Technical Guide on Performance-Based Seismic Design for Tall Buildings (2017). Dr. Golesorkhi was an active member of Ground Motion and Foundations/Site Conditions Task Committees of ASCE 7-22. He is currently on three Issue Task Working Groups of BSSC and three Task Committees of ASCE 7-28. He is a member of the Engineering Criteria Review Board (ECRB) of San Francisco Bay Conservation and Development Commission.supplemental activites.

## Main Guest Lecture: Site-Specific Time Series for Performance-Based Design and Near-Field Ground Motions.

The lecture given by Dr. Golesorkhi was a remarkable success with more than 40 in-person attendees between graduate students and faculty. This lecture was also part of the class SE 290 Structural Engineering Seminar which has several graduate students enrolled.

Dr. Golesorkhi conducted an interactive live lecture where he introduced the selection and processing site-specific time series to be used in the current design code for Performance-Based Design. The talk discussed methods of development, advantages and disadvantages of different methods, and some of the issues with the development of site-specific time series. Dr. Golesorkhi also commented about the limitations of the current code when dealing with site-specific time series for near-fault ground motions and introduced a proposal to address this issue. At the end of the session, further discussion about the lecture resulted due to questions asked by the attendees.

## Second Guest Lecture: Near Field Ground Motions.

This second lecture was given by Dr. Golesorkhi to the SE 222 Geotechnical Earthquake Engineering class with the support of Dr. Ahmed Elgamal. A total of 30 students attended the lecture besides the EERI Student Chapter board.

In this lecture Dr. Golesorkhi expanded about the special considerations required when dealing with near-field ground motions according to the current code for Performance-Based Design. Recent studies appear to suggest that near-field directivity effects are more pronounced at shorter than 15 km distances from the fault. The presentation showed the evaluation of whether near-field distance of 15 km is appropriate and if not, what is an appropriate distance to consider these effects and the manner in which ground motions should be considered in the near-field for structural evaluations and design. At the end of the session, further discussion about the lecture resulted due to questions asked by the students. It should be noted that the EERI Student Chapter provided coffee and snacks to the guest lecturer and attendees.

## Networking reception at local restaurant

The networking reception consisted in providing an exclusive space to the speaker and the attendees of the lecture where they could interact while enjoying free food and drinks. This reception occurred immediately after the main lecture and took place in an on-campus restaurant, therefore, more than 40 people were able to participate.

## RESULTS, FEEDBACK AND LESSONS LEARNED

- General: The visit of Dr. Golesorkhi was a meaningful and successful full event at the Structural Engineering department at UC San Diego. The multiple events were able to gather more than 60 people consisting of graduate students and faculty.
- The event was planned over two days with the objective of having both lectures in the SE 290 and SE 222 class. This approach was not as efficient since the guest had significant stand by time. We will try a more efficient approach next time.
- Funding challenges: The University of California San Diego EERI Student Chapter had no funds before the event. The funds to conduct the event came from the Structural Engineering Department at UC San Diego. Our team is currently working on fundraisers and other ways to get financial support.
- Attendees challenges: the University of California San Diego is known to be a very demanding school. Moreover, most graduate students are required to attend once or twice seminars per week. Therefore,

students can be reluctant to spend their time in an extra seminar during the week. Our team decided to approach this problem using several strategies: (1) Making the event part of the SE 290 and SE 222 classes so enrolled students would be more willing to attend, (2) Extensive use of our social media platforms to announce the event, and (3) Offering free food and drinks after the event. The results were more than 50 in-person attendees during the entire visit.

- Future visits: Our team would like to continue being part of the Friedman Family Visit Program. We would like to experience lectures on topics such as Earthquake Reconnaissance, Hybrid simulation, Seismic mitigation devices, and Geotechnical seismic isolation.

## ACKNOWLEDGEMENTS

The University of California EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of Ramin Golesorkhi through their Friedman Family Visiting Professional Program endowment. The University of California EERI Student Chapter is also thankful to the Structural Engineering Department at UC San Diego for the financial support. Finally, The University of California EERI Student Chapter recognizes the impactful guidance that Dr. Golesorkhi provided to the students during their visit.

## LIST OF ATTACHMENTS

Supplement attachments.

- Flier for event

## SE290 Seminar

### Site-Specific Time Series for Performance-Based Design and Near-Field Ground Motions

Dr. Ramin Golesorkhi, PE, GE  
*Langan*

**Time:** 12pm-12:50pm, April 15<sup>th</sup>  
**Location:** Franklin Antonio Hall 1450

**Abstract:** Recent seismic design codes are Performance-Based Design (PBD). PBD is a methodology that allows for design flexibility and opportunities for enhanced structural performance and innovation. Nonlinear time series evaluations and analyses are an integral part of PBD. As such, development of site-specific time series for PBD is an important part of PBD. This talk discusses the selection, methods of development, advantages and disadvantages of different methods, and some of the issues with the development of site-specific time series.

ASCE 7-16 and 7-22 define near-field as sites being 15 km (9.5 mi) or less from the surface projection of active fault capable of generating a moment magnitude,  $M_w$ , 7 or larger. Near-field effects have long been recognized (e.g. Singh 1985, Somerville et al. 1997, Abrahamson 2000, Golesorkhi and Gouchon 2002) and include directivity and directionality effects. These effects amplify long period spectral values in the forward rupture directivity and in the fault normal (FN) direction. More recent studies appear to suggest that these near-field directivity effects are more pronounced at shorter than 15 km distances from the fault. The presentation will focus on the motivation of our study to evaluate whether near-field distance of 15 km is appropriate and if not, what is an appropriate distance to consider these effects and the manner in which ground motions should be considered in the near-field for structural evaluations and design?

**Biosketch of Dr. Golesorkhi:** Dr. Golesorkhi has more than 37 years of experience in seismic analysis and foundation engineering. He is the director of seismic engineering services at Langan. He provides engineering consultation for projects involving deep excavation, tunneling, foundation support and settlement, vertical and lateral evaluation of pile foundations, stability of earth structures, seismic soil-structure interaction, seismic hazard evaluation, ground response analysis, liquefaction potential evaluation, evaluation of ground improvement techniques, and other geotechnical and environmental projects. As a member of the Structural Engineers Association of Northern California (SEAONC) ground motion and foundation committees, Dr. Golesorkhi was involved in the recommendation of new site and near-source factors and their implementation in the 1996 SEAOC Recommended Lateral Force Requirements and Commentary and the 1997 version of the Uniform Building Code (UBC). He was a member of the Blue Ribbon panel (1998) for incorporation of the 1997 provisions of the

- Photo of farewell from President Axel Yarahuaman and Dr. Ramin Golesorkhi at San Diego Airport.

