FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM

Visit to University of Texas at Austin: February, 21, 2019

This report summarizes the visit of **Ronald Eguchi,** President and CEO of ImageCat, that took place at the University of Texas at Austin on February, 21, 2019,

ITINERARY OR AGENDA

Provide the itinerary of the visit. For example:

TIME:	ACTIVITY:
11:30 AM – 12:00 PM	Meeting with Farid Khosravikia (President of the EERI student chapter)
12:00 PM – 12:30 PM	Tour of campus with Visiting Professional
12:30 PM – 1:30 AM	Guest lecture by Visiting Professional
1:30 PM – 3:00 PM	Lunch and informal meeting with EERI officers
3:00 PM – 3:30 PM	Meeting with Faculty members (Dr. Christian Claudel)
3:30 PM – 4:00 PM	Meeting with Faculty members (Dr. Patricia Clayton)
4:00 PM – 4:30 PM	Meeting with Faculty members (Dr. Juan Murcia-Delso)

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER(S):

- Farid Khosravikia, President, farid.khosravikia@utexas.edu
- Ghassan Fawaz, Vice-president, gfawaz@utexas.edu
- Reihaneh Hosseini, Treasurer, reihos@utexas.edu
- Sedef Kocakaplan, Secretory, sedef.kocakaplan@utexas.edu

Our faculty advisors, Dr. Patricia Clayton and Prof. Ellen Rathje, also helped us with the event.

VISITING PROFESSIONAL LECTURE OVERVIEW

Lecture Abstract

In many instances, disasters act as catalysts in the adoption of new and emerging technologies. Spawned by the need to rapidly collect vital information for disaster management, technology innovations have often helped emergency responders to assess the impact of large disasters more efficiently and rapidly, and to track and monitor progress in critical response and recovery operations. All of these events underscore the opportunities that emerge when time-critical information can be delivered more efficiently to users making critical decisions during the disaster.

One technology which has had an enormous impact on disaster management has been remote sensing. In the past several decades, this technology has been used extensively to explain the extent of impacts caused by earthquakes, tsunamis, hurricanes, floods, wildfires and terrorist attacks. Through high-resolution optical imagery and active sensors (e.g., synthetic aperture radar, or more commonly known as SAR, and light detection and ranging or In-situ and airborne LIDAR), remote sensing technologies have demonstrated

significant efficacies in quantifying post-disaster damage, monitoring recovery and reconstruction progress after significant disasters, and more recently, in developing important exposure information on our urban infrastructure.

Remote sensing technologies are also playing a major role in helping to understand the vulnerability and resilience of many emerging economies around the world. Currently, there are substantial activities taking place in Africa where detailed risk profiles from natural hazards are being constructed in order to prioritize natural hazard mitigation efforts. The notion of investing in mitigation before a disaster occurs is key in reversing the trend of ever-increasing losses from natural disasters that are especially prevalent in developing countries. In the past several years, NASA has sponsored focused research on how to use earth observation (EO) imagery to delineate areas of urban development as well as the locations of critical infrastructure. This information has allowed analysts to quantify the expected damage or loss to communities from a wide range of natural hazards. These risk profiles are now allowing in-country policy makers to consider in a consistent and systematic way how best to address these risks for both urban and rural exposures.

This presentation will show through examples how remote sensing technologies have changed the way in which we measure, monitor and evaluate community resilience to natural hazards worldwide. We will also discuss that even with this demonstrable progress, remote sensing technologies still have the potential to be even more valuable in enhancing resilience.

Professional Bio

Mr. Eguchi is President and CEO of ImageCat, Inc., an international risk management company that supports the global risk and catastrophe management needs of the insurance industry, governments and NGOs. Mr. Eguchi has over 30 years of experience in risk analysis and risk reduction studies. He currently serves or has served on several editorial boards including EERI's Journal SPECTRA. In 1997, he was awarded the ASCE C. Martin Duke Award for his contributions to the area of lifeline earthquake engineering. In 2006, he accepted an ATC Award of Excellence on behalf of the ATC-61 project team for work on An Independent Study to Assess Future Savings from Mitigation Activities that showed that a dollar spent on hazard mitigation saves the nation about $4 in future benefits. He was recognized by EERI as the 2008 Distinguished Lecturer where he discussed the topic of "Earthquakes, Hurricanes, and other Disasters: A View from Space." He currently chairs the Technical Committee on Advances in Information Technologies for the SEI Division of ASCE, a committee he started in 2015. He has authored over 300 publications, many of them dealing with the seismic risk of utility lifeline systems and the use of remote sensing technologies for disaster response. He was awarded the 2017 Civil & Environmental Engineering Department Distinguished Alumnus Award from UCLA.

SUPPLEMENTAL ACTIVITES

Meeting with Farid Khosravikia (President of the EERI student chapter)

Mr. Khosravikia picked Mr. Eguchi up from the hotel and took him to the campus. He gave Mr. Eguchi a tour of the main campus, and they discussed the current funded projects going on at the Ferguson Structural Engineering Laboratory at University of Texas at Austin.

Guest lecture by Visiting Professional

Mr. Eguchi gave his lecture to over 30 graduate students from civil department. Most of the attendees are from geotechnical and structural programs of the department. Moreover, there were some faculty members such as Dr. Rathje and Clayton among others. Based on the survey conduced after the session, his presentation got a rate of 4.8 out of 5.0, which indicates that almost all of the students were very interested and satisfied with his lecture.

Lunch and informal meeting with EERI officers

After the lecture, Mr. Eguchi had lunch with EERI officers. During the lecture, the officers introduced their research to Mr. Eguchi, and then, they had a discussion about the future of structural engineering.

Meeting with faculty members

After lunch and meeting with EERI officers, Mr. Eguchi had in person meetings with faculty members with similar research field such as Dr. Christian Claudel, Dr. Patricia Clayton, and Dr. Juan Murcia-Delso.

RESULTS, FEEDBACK AND LESSONS LEARNED

The lecture was about remote sensing and its application in geotechnical engineering. Based on the feedback we received from the attendees, students liked to see more lectures related to the application of more novel techniques such as Artificial Intelligence and Machine Leaning in structural and earthquake engineering. Thus, are planning to invite more lecturers with such research fields.

ACKNOWLEDGEMENTS

The University of Texas at Austin EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of Mr. Ronald Eguchi through their Friedman Family Visiting Professional Program endowment.