ASCE | INFRASTRUCTURE RESILIENCE

2021 Virtual Infrastructure Resilience Forum:
Emerging Technologies for Resilient Infrastructure
Tuesday, May 25, 2021
11:00 am – 5:00 pm EDT

Emerging Technologies for Resilient Infrastructure

11:00 – 11:10 am
Welcome *Mahmoud Reda Taha, University of New Mexico and Ricardo A. Medina, Simpson Gumpertz & Heger*

11:10 am – 12:10 pm
Keynote Presentations

11:10 - 11:40 am Bilal Ayyub, University of Maryland College Park, *The Need for Technologies in Resilient Infrastructure.*

11:40 am - 12:10 pm Kenichi Soga, University of California at Berkley, *A Framework for Using Emerging Technologies in Resilient Infrastructure.*

12:10 – 12:25 pm
Break

12:25 – 2:25 pm
Break Out Sessions

Session 1: **<u>Structural Health Monitoring for Resilient Infrastructure</u>**

(Organized and Moderated by Nassim Uddin, University of Alabama)

12:25 – 12:45 pm   Yunfeng Zhang, University of Maryland, College Park, *Enhancing Seismic Resilience of Structural Systems Through Condition Monitoring of Replaceable Fuse Devices.*

12:45 – 1:05 pm   Branko Glisic, Princeton University, *SHM for Resilient Communities: Resourcefulness and Responsiveness*.

1:05 – 1:25 pm   Henry V. Burton, University of California at Los Angeles, *Development of a Generalized Cross-Building Structural Response Reconstruction Model Using Strong Motion Data*.

1:25 – 1:45 pm   Peter Hubbard, University of California at Berkley, *Improving Critical Water Pipeline Resilience at Fault Crossings using HDPE and Distributed Strain Sensing (DSS).*

1:45 – 2:05 pm   Necati Catbas, University of Central Florida, *Mixed Reality for Infrastructure Evaluation.*

2:05 – 2:25 pm   Nasim Uddin, University of Alabama, *Drive-by and Fly-by Monitoring and Damage Detection Technology for Improved Bridge Network Resiliency.*

Session 2: **<u>Machine Learning and Virtual Reality</u>**

(Organized and Moderated by Shane Crawford – NIST)

12:25 – 12:45 pm   Richard L. Wood, University of Nebraska Lincoln, *Machine Learning-Based Post Windstorm Damage Assessment from Aerial-Derived Point Clouds*.

12:45 – 1:05 pm   ZhiQiang Chen, University of Missouri at Kansas City, *Machine Understanding of Disaster and Infrastructure Scenes Using Deep Learning.*

1:05 – 1:25 pm   Stephanie F. Pilkington, University of North Carolina at Charlotte, *Opening the Black Box of A Socio-Technical Wind Damage Artificial Neural Network Model.*

1:25 – 1:45 pm   Sang-Ho Yun, Jet Propulsion Laboratory, California Institute of Technology, *Machine Learning for Disaster Response using Satellite Synthetic Aperture Radar Observations*.

1:45 – 2:05 pm   Pingbo Tang, University of Maryland, College Park, *Human-Cyber-Physical Systems for Resilient Civil Infrastructure Operations in a Changing World.*

2:05 – 2:25 pm   Eun Jeong Cha, University of Illinois at Urbana-Champaign, *Deep Learning-Based Power Distribution Network Modeling.*

2:25 – 2:40 pm
Break

Keynote Presentation

2:45 – 3:15 pm   Laura Girard, U.S. Federal Highway Administration, *Collaborative Hydraulics for Resilient Infrastructure***.**

3:30 – 4:50 pm
Session 3: **Infrastructure Resilience: <u>The Japanese Experience</u>**

(Organized and Moderated by Ricardo A. Medina, Simpson Gumpertz & Heger)

Speakers

3:30 – 3:50 pm   Kiyoshi Kobayashi, Kyoto University, *Researches and Policies for Infrastructure Resilience: Japanese Perspective.*

3:50 – 4:10 pm   Riki Honda, University of Tokyo, *Anti-catastrophe: Performance of Damaged Infrastructure for Community Resilience.*

4:10 – 4:30 pm   Tomohito Yamada, Hokkaido University, *Adaptation Measures for Extreme Floods Using Risk-based Approach with Huge Ensemble Climate Data.*

4:30 – 4:50 pm   Masamitsu Onishi, Kyoto University, *Mapping the Allocation of Academic Efforts for Infrastructure Resilience Based on the Infrastructure Resilience Framework.*

4:50 – 5:00 pm
Forum Wrap-up   *Mahmoud Reda Taha, University of New Mexico and Ricardo A. Medina, Simpson Gumpertz & Heger*