2nd International Conference on

ACE
Architectural, Civil, and Environmental

Forensic Engineering

January 10-12, 2023

Webinar (Zoom)
Korea University, South Korea

2nd International Conference on

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Forensic Engineering

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Day 1 — Challenges in Geotechnical Engineering (Jan 10)

Time	Content
09:30–09:45	Registration
09:45–09:50	Welcome Address Jong–Sub Lee (PI, Hyper–converged Forensic Research Center for Infrastructure, South Korea)
09:50–10:00	Complimentary Address Moonkyung Chung (President in Korean Geotechnical Society, South Korea)
Session 1	**Underground Geosystems Stability Assessment** Chair : Prof. Jong–Sub Lee
10:00–10:30	On the Mechanical Behavior of Underground Pipeline Rehabilitated by Cured In Place Pipe Keh–Jian Shou (Vice President Asia in ISSMGE / Professor, National Chung Hsing University, Taiwan)
10:30–11:00	Characterization of Geotextile Tube Stability Yong–Hoon Byun (Professor, Kyungpook National University, South Korea)
11:00–11:30	Learning from Rehabilitation of Geotechnical Engineering Works Suttisak Soralump (President in South East Asia Geotechnical Society & Thai Geotechnical Society / Professor, Kasetsart University, Thailand)
11:30–12:00	Debris–Flow Hazard Assessment and Optimal Barrier Design Model for Mitigation Seung–Rae Lee (Professor, Korea Advanced Institute of Science and Technology, South Korea)
12:00–13:00	Lunch
Session 2	**Advanced Characterization Techniques for Geo–Infrastructures** Chair : Prof. Tae Sup Yun
13:00–13:30	Towards Community–Scale Landslide Resiliency: From 3D Mapping & Modeling of Past Natural Disasters to Preparing for Future Disasters Dimitrios Zekkos (Professor, University of California at Berkeley, USA)
13:30–14:00	Smart Sensing for Evaluation of Drilled Shaft Integrity Jong–Sub Lee (Professor, Korea University, South Korea), Jung–Doung Yu (Professor, Joongbu University, South Korea), Dongsoo Lee (Korea University, South Korea)
14:00–14:30	Current State of the Practice in the Philippines for Quality Assurance of Driven and Bored Piles Mark Albert Zarco (President in Philippine Society for Soil Mechanics and Geotechnical Engineering / Professor, University of the Philippines Diliman, Philippines)
14:30–15:00	Break
Session 3	**Forensic Failure Assessment** Chair : Prof. Yong–Hoon Byun
15:00–15:30	Geotechnical Marriage between Theory & Practice Marc Ballouz (President in ISSMGE / President in Int'l Institute for Geotechnics & Materials, Lebanon)
15:30–16:00	The Experience of Geotechnical Construction and Testing of Piling Foundations of Megastructures on Problematical Soil Ground of Kazakhstan Askar Zhussupbekov (Former Vice President Asia in ISSMGE / Professor, Eurasian National University, Kazakhstan)
16:00–16:30	Singapore Case Studies on Forensic Geotechnics Chun Fai Leung (Professor, National University of Singapore, Singapore)
16:30–17:00	Deep Learning for Image–Based Compressional Wave Velocity Prediction of Cement–Reinforced Soil Based on Core–Image Tae Sup Yun (Professor, Yonsei University, South Korea)
	Closing Comments

Day 2 — Advanced Structural Engineering (Jan 11)

Time	Session
08:20–08:50	Registration
08:50–09:00	Introductory Comments & Welcome
Session 1	**Forensic Structural Engineering I** — Chair : Prof. Thomas Kang
09:00–09:25	Beyond Machine Learning: Causality & Knowledge Discovery in Structural Engineering M.Z. Naser (Professor, Clemson University, USA)
09:25–09:50	Importance of Detailing on Response and Failure Mechanism of Bridges to Seismic Events Riyad S. Aboutaha (Professor, Syracuse University, USA)
09:50–10:15	Conditional Assessment of Fire Damaged Structures: From Reconnaissance to Advanced Analysis Venkatesh Kodur (Professor, Michigan State University, USA)
10:15–10:30	QnA
10:30–10:40	Break
Session 2	**Forensic Structural Engineering II** — Chair : Prof. Seungjun Kim
10:40–11:05	Nonlinear Modeling of Beam–Column Joints in Forensic Analysis of Concrete Buildings Serhan Guner (Professor, University of Toledo, USA)
11:05–11:30	Assessment of Concrete Macrocrack Depth Using Infrared Thermography Young K. Ju (Professor, Korea University, South Korea)
11:30–11:55	Application of the Artificial Neural Networks on the Structural Health Monitoring for the Offshore Structures Seungjun Kim (Professor, Korea University, South Korea)
11:55–12:10	QnA
12:10–13:00	Lunch
Session 3	**Forensic Structural Engineering III** — Chair : Prof. Seungjun Kim
13:00–13:25	Surrogate Model for Failure Back–Analysis Amichai Mitelman (Professor, Ariel University, Israel)
13:25–13:50	Utilising Artificial Neural Networks for Prediction Properties of High–Performance Concrete Harry Far (Professor, University of Technology Sydney, Australia)
13:50–14:15	Comparative Study on Dynamic Response of Fixed Offshore Wind Turbines with Different Substructures Using X–SEA Software Goangseup Zi (Professor, Korea University, South Korea)
14:15–14:30	QnA
14:30–14:40	Break
Session 4	**Forensic Structural Engineering IV** — Chair : Prof. Seungjun Kim
14:40–15:05	Causes of Local Collapse of a Precast Industrial Roof after a Fire Bruno Dal Lago (Professor, University of Insubria, Italy)
15:05–15:30	Structural Health Monitoring of Railways Bridges Giorgio Monti (Professor, Sapienza University of Rome, Italy)
15:30–15:45	QnA
	Closing Comments

Day 3	Recent Approaches to React and Analyze Failures in Water & Environmental Systems in Climate Change (Jan 12)

09:20–09:50	Registration
09:50–10:00	Introductory Comments & Welcome

Session 1	Water–Related Disaster Risk Reduction and Management Chair : Prof. Donghwi Jung
10:00–10:20	Disaster Risk Management in Water Resources Engineering: Machine Learning Approaches Donghwi Jung (Professor, Korea University, South Korea)
10:20–10:40	Japan's New Policy on Water–Related Disaster Risk Reduction in Response to Climate Change Kenichi Tsukahara (Professor, Kyushu University, Japan)
10:40–11:00	Dynamic Evolution and Decoupling Analysis of Agricultural Nonpoint Source Pollution in Taihu Lake Basin during the Urbanization Process Dongying Sun (Professor, Jiangsu University, China)
11:00–11:20	Flood Risk Assessment to Economic Sectors in Vietnam Thi Thuy Ngo (Principal Researcher, Vietnam Institute of Meteorology Hydrology and Climate Change, Vietnam)
11:20–11:40	QnA
11:40–13:00	Lunch

Session 2	Hydrology and Climate Change Chair : Prof. Chulsang Yoo
13:00–13:20	No–Regret Climate Change Adaptation with Paradigm–Shifts against Water–Related Disaster in Japan Eiichi Nakakita (Professor, Kyoto University, Japan)
13:20–13:40	The Impact of Climate Change on Rainfall Patterns Seokhyeon Kim (Professor, Kyung Hee University, South Korea)
13:40–14:00	Application of Single Model Initial–condition Large Ensemble (SMILE) in Projecting Hydroclimatic Whiplash Wooyoung Na (Postdoctoral Associate, Western University, Canada)
14:00–14:20	Development of Regional Flood Forecasting System Based on Rainfall Radar Seokhwan Hwang (Research Fellow, Korea Institute of Civil Engineering and Building Technology, South Korea)
14:20–14:40	QnA
14:40–15:00	Break

Session 3	Recent Advancement in Water Treatment Technologies in Response to Climate Change Chair : Prof. Seungkwan Hong
15:00–15:20	Low Carbon and Circular Seawater Desalination Technology Seungkwan Hong (Professor, Korea University, South Korea), Jungbin Kim (Postdoctoral Researcher, Korea University, South Korea)
15:20–15:40	Electromagnetism for Enhancing the Performance of Emerging Water Desalination Processes Emad Alhseinat (Professor, Khalifa University, UAE)
15:40–16:00	Advances in Water Reuse Wontae Lee (Professor, Kumoh National Institute of Technology, South Korea)
16:00–16:20	Field Application of Positively Charged Bubble (PCB) Technology for Algae Removal and Further Utilization Mooyoung Han (Professor Emeritus, Seoul National University, South Korea)
16:20–16:40	QnA
	Closing Comments

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