

Symposium Program

Civil, Environmental and Architecture [CEA]

Symposium Chair: Yong-Rak Kim (University of Nebraska)

Co-Chairs: Boo-Hyun Nam (University of Central Florida), Dae-Hong Kim (University of Seoul)

August 10, Thursday, 8:00-9:40AM at Potomac III

CEA Session: Infrastructure Resilience I

Chair: Chungwook Sim (University of Nebraska-Lincoln), Co-Chair: Hyungchul Yoon (Michigan Technological Univ.)

8:00 AM	[INVITED] Corrosion-Induced Bridge Deterioration Seung-Kyoung Lee (SK Lee and Associates, Inc.)
8:40 AM	Air-Coupled Ultrasonic Applications for Full-Scale Civil Infrastructure Hajin Choi (Federal Highway Administration)
8:55 AM	Estimation of Global Structural Responses from GNSS Measurement Data on Bridges Junho Choi (Texas A&M University)
9:10 AM	Remote Localization from Multi-modal Mobile Sensing Hyungchul Yoon (Michigan Technological University)
9:25 AM	Determination of Creep Compliance of Asphalt Mixtures with Pneumatic Indirect Tensile Tester Kang-Won Lee (University of Rhode Island)

August 10, Thursday, 8:00-9:40AM at Conference Theater

CEA Session: Water and Environment I

Chair: Jae Hyeon Ryu (University of Idaho), Co-Chair: Dae-Hong Kim (University of Seoul)

8:00 AM	[INVITED] Designing Low Impact Sustainable Development Treatment Systems for Agricultural Environments Stevn Trinkaus (Trinkaus Engineering, LLC)
8:20 AM	Evaluating Changes of Citizen's Values on Identification of Hydrological Vulnerability between the Past and Present for Sustainable Watershed Planning Chang-Yu Hong (Portland State University)
8:40 AM	Application of Unmanned Aerial System (UAS) for Water Research and Environmental Studies Jae Hyeon Ryu (University of Idaho)
9:00 AM	Characteristics Classification of Irrigation Dam for Development of Geotechnical Risk Analysis Model Jeong-Yeul Lim, Nam-Ryong Kim (K-Water Institute, Korea Water Resource Corporation)
9:20 AM	Performance and Economy of Eco-Melting on Roads Youngguk Seo (Kennesaw State University)

August 10 Thursday, 1:20-3:20PM at Potomac I

CEA/CIT Interdisciplinary Session: Connected and Automated Vehicles (CAV-1)

Chair: Yu Seung Kim (Ford Motors), Co-Chair: Guiling Wang (NJIT)

1:20 PM	[INVITED] Intelligent Trucking System - Connected and Automated Sungbok Kwak (FLEETUP)
2:00 PM	An efficient key establishment scheme for VANETs Kiho Lim (University of South Dakota)
2:20 PM	Speed Harmonization using Optimal Control Algorithm under Mixed Traffic of Automated Vehicles and Human Driven Vehicles Sungah Hong (University of Virginia)
2:40 PM	An Effects Analysis of Logistics Collaboration: The Case of Pharmaceutical Supplies in Seoul Dongju Park (University of Seoul)
3:00 PM	Simulation-based Framework for Connected and Automated Vehicle (CAV) Impact Assessment Jyoung Lee (NJIT)

August 10 Thursday, 1:20-3:20PM at Potomac III

CEA/MAN/CHM Interdisciplinary Session: Carbon Capture Storage and Utilization (CCSU)

Chair: Seunghye Kim (University of Nebraska-Lincoln), Co-Chair: Sunho Choi (Northeastern University)

1:20 PM	[Invited] Overview of U.S. Department of Energy's Carbon Storage R&D Program Darin Damiani (Office of Fossil Energy, U.S. Department of Energy)
1:50 PM	Fiber Optic Sensor for Sensing Carbon Dioxide Gas Martin Byung-Guk Jun (Purdue University)
2:05 PM	Pore-Network Simulations for CO₂ Geologic Sequestration Seunghye Kim (University of Nebraska-Lincoln)
2:20 PM	Thermal Fracturing in Reservoirs - Implications in CO₂ Geostorage Minsu Cha (Texas A&M University)
2:35 PM	Joint Analysis of Integrated Flow, Geomechanics, and Geophysics in Geological CO₂ Sequestration , Jihoon Kim (Texas A&M University)
2:50 PM	Predictive Modeling of Nanoporous Materials for Carbon Capture Yongchul Chung (Pusan National University)
3:05 PM	Porosity Variations in Gravimetric Modelling of Geological CO₂ Reservoir Jeong Woo Kim (University of Calgary)
August 10, Thursday, 3:40-5:40PM at Washington B	
CEA/CIT Interdisciplinary Session: Smart City	
Chair: Soolyeon Cho (NCSU)	
3:40 PM	[INVITED] Shared Autonomous Electric Mobility for Smart Cities Donna Chen (University of Virginia)
4:20 PM	Assessment of Roadway Reservation System towards Smart City Brian Park (University of Virginia)
4:40 PM	Before Sunrise or Before Midnight? Tackling Temporally Uncertain Contextual Effects in Measuring Nighttime Urban Vitality Young-Long Kim (Clark University)
5:00 PM	Characteristics of Artificial Intelligence Algorithms in Building Systems Yeobeom Yoon (North Carolina State University)
5:20 PM	Adaptive Façade: Smart Building for Improved Energy Efficiency and Human Comfort Majd Hijazi (North Carolina State University)
August 10, Thursday, 3:40-5:40PM at Potomac III	
CEA Session: Infrastructure Resilience II	
Chair: Chungwook Sim (University of Nebraska-Lincoln), Co-Chair: Hyungchul Yoon (Michigan Technological Univ.)	
3:40 PM	[INVITED] Designing for Mitigation of Disproportionate Collapse of Building Structures H. S. Lew (National Institute of Standards and Technology)
4:10 PM	Numerical Study of Seismic Responses of Reinforced Concrete Piers Against Aftershocks Moochul Shin (Western New England University)
4:25 PM	Automated Damage Evaluation for Big Visual Data Collected from Earthquake Chulmin Yeum (Purdue University)
4:40 PM	Big Data Innovations for Aging Bridge Infrastructure Chungwook Sim (University of Nebraska-Lincoln)
4:55 PM	A Computational Fluid Dynamics Based Design Procedure of Civil Infrastructures Donghun Yeo (National Institute of Standards and Technology)
5:10 PM	Multiscale Approach Toward Sustainable/Resilient Civil Infrastructures Yong-Rak Kim (University of Nebraska-Lincoln)
5:25 PM	Risk-Based Multi-Hazard Costal Community Resilience YeongAe Heo (Case Western Reserve University)
August 10, Thursday, 3:40-5:40PM at Potomac I	
CEA/CIT Interdisciplinary Session: Connected and Automated Vehicles (CAV-2)	
Chair: Joyoung Lee (NJIT), Co-Chair: Eonsoo Lee (NJIT)	
3:40 PM	[INVITED] Distributed Intersection Management Protocol for Driver's Safety, Efficiency, and Comfort Guiling Wang (NJIT)

4:20 PM	Study on Infraless Authentication for Inter-Vehicular Communications Yu Seung Kim (Ford Motors)
4:40 PM	Integrated Simulation Framework for Evaluating Safety Performance of Connected and Automated Vehicles Lian Cui (University of Virginia)
5:00 PM	Older Adult Crashes Associated with Roadway Features Jun-Seok Oh (Western Michigan University)
5:20 PM	Multi-Objective Optimization Framework for Cooperative and Automated Vehicle Platooning Eonsoo Lee (NJIT)

August 10 Thursday, 3:40-5:40PM at Potomac IV

CEA Session: Water and Environment II

Chair: Jae Hyeon Ryu (University of Idaho), Co-Chair: Dae-Hong Kim (University of Seoul)

3:40 PM	[INVITED] Transitions between Uncontrolled and Controlled Free Flow in Low Head Ogee Spillway Seung Ho Hong (West Virginia University)
4:10 PM	A Novel Nanofiber Nasal Filter (NNF) to Improve Respiratory Health Taewon Han (Rutgers University)
4:25 PM	Integrated Mangement for E-waste Recycling in Korea Seung-Whee Rhee (Kyonggi University, South Korea)
4:40 PM	How Low Impact Sustainable Development Strategies Can Mitigate High Intensity Rainfall Events Steve Trinkaus (Trinkaus Engineering, LLC)
4:55 PM	Two-Step Methane-Powered Microbial Fuel Cell Jaewook Myung, Bruce E. Logan (Pennsylvania State University)
5:10 PM	Skin-temperature Driven Environmental Control Systems in a Building Joon-Ho Choi, Dongwoo Yeom (University of Sourthern California)
5:25 PM	Sustainability Assessment of Water Infrastructure and Services in Korea Byung Kook Lee (K-Water)

August 11 Friday, 8:00-9:40AM at Potomac III

CEA Session: Speed Talk

Chair: Boo-Hyun Nam (University of Central Florida), Co-Chair: Byoung Hooi Cho (Samsung C&T)

8:00 AM	<p>Rainfall Spatial Distribution Effect on Determining Rainfall Spatial Resolution for Runoff Prediction, Dae-Hong Kim (University of Seoul)</p> <p>Application of NASA LIS to flood and drought indicators in East Asia and Korea through improved fidelity under flood agriculture conditions, Dohyuk Kang</p> <p>Succession of Microbial Populations Linked to Surface Residual Ball Degradation in Pensacola Beach Sands Impacted by the Deepwater Horizon Oil Spill, Boryoung Shin (Georgia Tech.)</p> <p>Treatment Performance of Direct Contact Membrane Distillation for Broad Spectrum of Organic Contaminants in Water, Danbi Won (University of Washington)</p> <p>Challenges and Opportunities of Estimating Traffic Measures using Low-Cost WiFi Readers, Seunghan Ryu (University of Virginia)</p> <p>Individual Route Choice Behavior Modeling, Bingrong Sun (University of Virginia)</p> <p>Geohazard Mapping of Rural Areas in East Central Florida, Yongje Kim (University of Central Florida)</p> <p>FE model of support layers to reasonably predict behavior of CRCP, Byoung Hooi Cho (Samsung C&T)</p> <p>Application of polyacrylamide solution for soil remediation, Jungyeon Jang (LSU)</p> <p>Advanced elastostatic technologies for sampling airborne biological particles, Taewon Han (Rutgers University)</p> <p>Effects of Roadside Distractors on Performance of Drivers with and without Attention Deficit Tendencies, Sung Jun Park (Georgia Tech.)</p> <p>A Framework for Accurate Premium Cost Estimation for Green Buildings, Joseph Kim (California State University, Long Beach)</p> <p>Soft Micromotors for Photodegradation, Junghoon Yeom (Michigan State University)</p> <p>Determination of Dynamic Modulus of Hot Mix Asphalt (HMA), Kang-Won Lee (University of Rhode Island)</p>
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Deactivation of Sulfide Oxidizing Bacteria to Prevent Sewer Corrosion/Collapse/Explosion, Choonghee Rhee (Standard Testing and Engineering, Inc.)
Seismic Design Optimization of Base-Isolated Systems with Hysteretic Dampers, Woobin Tark (University of Illinois at Urbana-Champaign)
Geohazard Mapping of Rural Areas in East Central Florida, Boohyun Nam (University of Central Florida)
Comparison of Emergency Management Systems in the U.S. and S. Korea, Boohyun Nam (University of Central Florida)
Computational Study of Backward Extrusion Process using FEM, Yooseob Song (LSU)
Environmental Impacts of Concrete incorporated with MSWI (Municipal Solid Waste Incineration) ashes, Jinwoo An (University of Central Florida)
Separation Characteristics of Ions and Natural Organic Matter in Electrodialysis, Soyeon Kum (University of Texas at Austin)
Nitrate Removal from Water by Zero-valent Iron-supported Mixed Cultures, Inyoung Kim (University of Delaware)
Automatic Construction using Slip-form System, Bongyoung Yoo (Parsons Corporation)
Validation of Digital Image Correlation to BEAST Health Monitoring, Sun Ho Ro (Rutgers University)
Environmental Impact Assessment for Evaluating Traffic Calming Measures, Shinhye Joo (Western Michigan University)
Interactive control of a flying robot for automated bridge inspection, Kwanghee Won (University of Nebraska-Lincoln)
Application of polyacrylamide solution for soil remediation, Jungyeon Jang (LSU)
Developing an Energy Harvesting System Using Piezoelectric Wafer Boxes in Roadway Materials, Seonghoon Kim (Georgia Southern University)
Evaluating Key Factors That Affect Route Choice Characteristics of Owner-Operated Trucks in Southern California Freeways, Joseph Kim (California State University, Long Beach)
Stability of Dike with EPS Geofam Core during a High Flood Event, Sochan Jung (Fugro USA Land, Inc.)
Electricity Generation from Oily Wastewater using Microbial Fuel Cells (MFCs), Woo Hyoung Lee (University of Central Florida)
Vehicle Recognition and Classification Model to Estimate Individual Vehicle's Energy Consumption and Emissions, Daejin Kim (Georgia Tech.)
Development of Water Hazard information platform using Satellite, Radar, AWS, HyoSok Chae (K-Waer)

August 11 Friday, 1:20-3:20PM at Potomac III

CEA Session: Commercializable Civil Engineering Technologies

Chair: Jun-Seok Oh (Western Michigan University), Co-Chair: Yong-Rak Kim (University of Nebraska)

1:20 PM	GeoBIM based Data Integration for Smart FM Taewook Kang (KICT)
1:45 PM	Development of Virtual Reality-based Disaster Evacuation Simulation in Underground Space Myoung-Bae Seo (KICT)
2:10 PM	Theoretical Approach to Minimize the Disturbance of a Soil Bed in a Vacuum Chamber Janguen Lee (KICT)
2:35 PM	Development of Moon and Mars Environment Simulator Taeil Chung (KICT)
3:00 PM	How to Commercialize Civil Engineering Technology Hosin "David" Lee (University of Iowa)

August 11 Friday, 3:40-5:40PM at Independence A

CEA Session: Posters

Chair: Boo-Hyun Nam (University of Central Florida), Co-Chair: Byoung Hooi Cho (Samsung C&T)

PT-1	Rainfall Spatial Distribution Effect on Determining Rainfall Spatial Resolution for Runoff Prediction , Dae-Hong Kim (University of Seoul)
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PT-2	Application of NASA LIS to flood and drought indicators in East Asia and Korea through improved fidelity under flood agriculture conditions , Dohyuk Kang
PT-3	Succession of Microbial Populations Linked to Surface Residual Ball Degradation in Pensacola Beach Sands Impacted by the Deepwater Horizon Oil Spill , Boryoung Shin (Georgia Tech.)
PT-4	Treatment Performance of Direct Contact Membrane Distillation for Broad Spectrum of Organic Contaminants in Water , Danbi Won (University of Washington)
PT-5	Challenges and Opportunities of Estimating Traffic Measures using Low-Cost WiFi Readers , Seunghan Ryu (University of Virginia)
PT-6	Individual Route Choice Behavior Modeling , Bingrong Sun (University of Virginia)
PT-7	Geohazard Mapping of Rural Areas in East Central Florida , Yongje Kim (University of Central Florida)
PT-8	FE model of support layers to reasonably predict behavior of CRCP , Byoung Hooi Cho (Samsung C&T)
PT-9	Application of polyacrylamide solution for soil remediation , Jungyeon Jang (LSU)
PT-10	Advanced elastostatic technologies for sampling airborne biological particles , Taewon Han (Rutgers University)
PT-11	Effects of Roadside Distractors on Performance of Drivers with and without Attention Deficit Tendencies , Sung Jun Park (Georgia Tech.)
PT-12	A Framework for Accurate Premium Cost Estimation for Green Buildings , Joseph Kim (California State University, Long Beach)
PT-13	Soft Micromotors for Photodegradation , Junghoon Yeom (Michigan State University)
PT-14	Determination of Dynamic Modulus of Hot Mix Asphalt (HMA) , Kang-Won Lee (University of Rhode Island)
PT-15	Deactivation of Sulfide Oxidizing Bacteria to Prevent Sewer Corrosion/Collapse/Explosion , Choonghee Rhee (Standard Testing and Engineering, Inc.)
PT-16	Seismic Design Optimization of Base-Isolated Systems with Hysteretic Dampers , Woobin Tark (University of Illinois at Urbana-Champaign)
PT-17	Geohazard Mapping of Rural Areas in East Central Florida , Boohyun Nam (University of Central Florida)
PT-18	Comparison of Emergency Management Systems in the U.S. and S. Korea , Boohyun Nam (University of Central Florida)
PT-19	Computational Study of Backward Extrusion Process using FEM , Yooseob Song (LSU)
PT-20	Environmental Impacts of Concrete incorporated with MSWI (Municipal Solid Waste Incineration) ashes , Jinwoo An (University of Central Florida)
PT-21	Separation Characteristics of Ions and Natural Organic Matter in Electrodialysis , Soyoon Kum (University of Texas at Austin)
PT-22	Nitrate Removal from Water by Zero-valent Iron-supported Mixed Cultures , Inyoung Kim (University of Delaware)
PT-23	Automatic Construction using Slip-form System , Bongyoung Yoo (Parsons Corporation)
PT-24	Validation of Digital Image Correlation to BEAST Health Monitoring , Sun Ho Ro (Rutgers University)
PT-25	Environmental Impact Assessment for Evaluating Traffic Calming Measures , Shinhye Joo (Western Michigan University)

PT-26	Interactive control of a flying robot for automated bridge inspection , Kwanghee Won (University of Nebraska-Lincoln)
PT-27	Application of polyacrylamide solution for soil remediation , Jungyeon Jang (LSU)
PT-28	Developing an Energy Harvesting System Using Piezoelectric Wafer Boxes in Roadway Materials , Seonghoon Kim (Georgia Southern University)
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PT-31	Electricity Generation from Oily Wastewater using Microbial Fuel Cells (MFCs) , Woo Hyung Lee (University of Central Florida)
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