CI & CRC Joint Conference 2022

Next Generation Construction
March 9-12, 2022
Arlington, VA

CRC Technical Program
Track Schedule

Version 2 – January 18, 2022

https://cisummit-crc.asce.org/
### Thursday March 10, 2022

**Session 1: 1:00 pm - 2:00 pm**

#### Track 1: Construction Education

<table>
<thead>
<tr>
<th>Room: Potomac 1</th>
<th>CED-10</th>
<th>Correlation Between Brain Cognitive Response And On-Line Questionnaire During A Construction Safety Training In Virtual Reality</th>
<th>Krishna Kris, Tulio Sulbaran</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potomac 4</td>
<td>CED-14</td>
<td>VROnSite: Online Site Visits Using Web-Based Virtual Environments</td>
<td>Ricardo Eiris, Yuan Sun, Masoud Gheisari, Brent Marsh, Pasi Lautala</td>
</tr>
<tr>
<td>Potomac 5</td>
<td>CED-22</td>
<td>Conversational Virtual Humans On 360 Degree Virtual Sites: Guiding Students On A Visit To A Mechanical Room</td>
<td>Jing Wen, Masoud Gheisari</td>
</tr>
<tr>
<td>Potomac 3</td>
<td>CED-32</td>
<td>Use Of Virtual Site Visits In Construction Management Distance Education</td>
<td>Alireza Shojaei, Amirsaman Madahavani, Saeed Rokoozai, Ahmad Al Bayati</td>
</tr>
</tbody>
</table>

#### Track 2: Health, Safety, and Workforce Issues

<table>
<thead>
<tr>
<th>Room: Potomac 2</th>
<th>HSW-29</th>
<th>Risk Assessment For Using Uas In Construction: A Fuzzy Analytical Hierarchy Process</th>
<th>Yifei Xu, Yelda Turkan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potomac 4</td>
<td>HSW-33</td>
<td>Comprehensive Analysis On The Effectiveness Of The Multiskilling Strategy Among Craft Professionals</td>
<td>Rakan K Albalawi, Paul M. Goodrum, Tim Taylor, Kevin Real, Mohammed A. Abbattah</td>
</tr>
<tr>
<td>Potomac 5</td>
<td>HSW-33</td>
<td>Assessing Lower Extremity Kinematics Of Roofing Tasks</td>
<td>Matin Jahani Jirsarai, Behzad Esmailii, Parth Pathak</td>
</tr>
</tbody>
</table>

#### Track 3: Automation in Construction

<table>
<thead>
<tr>
<th>Room: Potomac 3</th>
<th>AIC-08</th>
<th>Evaluating The Perception Of Human-Robot Collaboration Among Construction Project Managers</th>
<th>Mahya Sam, Bryan Franz, Edward Seh-Taylor, Christopher McCarty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potomac 4</td>
<td>AIC-10</td>
<td>Human Robot Comparison In Rapid Structural Inspection</td>
<td>Pengxiang Xia, Fang Xu, Qi Zhu, Jing Du</td>
</tr>
<tr>
<td>Potomac 2</td>
<td>AIC-11</td>
<td>Human Intent Prediction In Human-Robot Collaboration: A Pipe Maintenance Example</td>
<td>Tianyu Zhou, Yubo Wang, Jing Du</td>
</tr>
<tr>
<td>Potomac 5</td>
<td>AIC-17</td>
<td>Worker’s Response Through Trust Measurement During Human-Robot Collaboration</td>
<td>Shayan Shafeeyeh, Houtan Jiebili</td>
</tr>
</tbody>
</table>

#### Track 4: Infrastructure Systems, Sustainability and Resilience

<table>
<thead>
<tr>
<th>Room: Potomac 4</th>
<th>ISR-06</th>
<th>Economic Viability Of Solar Panels For Single Family Homes</th>
<th>Pramen Prasad Shreesh, Mythili Pragada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potomac 4</td>
<td>ISR-08</td>
<td>Economics Of Energy Efficient Electrical Appliances Used In Residential Buildings In The U.S.</td>
<td>Mohamed Abdel-Rahem, Miranda Garcia, Mark Hernandez, Shaun Morin</td>
</tr>
<tr>
<td>Potomac 4</td>
<td>ISR-114</td>
<td>Preliminary Analysis Of Environmental Focus Roofing Strategies In Colorado’s Front Range Region</td>
<td>Joe Oakman, Rodolfo Valdes-Vasquez</td>
</tr>
<tr>
<td>Potomac 4</td>
<td>ISR-112</td>
<td>Understanding How Green Contractors Displayed Social Sustainability Actions Due To The Bim Movement In 2020</td>
<td>Rodolfo Valdes-Vasquez, Deniz Besiktepe</td>
</tr>
</tbody>
</table>

#### Track 5: Health, Safety, and Workforce Issues

<table>
<thead>
<tr>
<th>Room: Potomac 5</th>
<th>HSW-41</th>
<th>Construction Safety Training Interventions: State Of The Science And Future Opportunities</th>
<th>Abdullah Alsharif, S M Jamiluddin, Alex Albert, Siddharth Bhardari, Edward Jawaski</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potomac 5</td>
<td>HSW-48</td>
<td>Evaluation Of Construction Workers' Emotional States During Virtual Reality-Based Safety Training</td>
<td>Kwonsik Song, Gaang Lee, Sanguk Han, Sanghyun Lee</td>
</tr>
<tr>
<td>Potomac 5</td>
<td>HSW-51</td>
<td>Are Multimedia Training Interventions Effective Within Traditional Safety Training Frameworks?</td>
<td>Srejaa Thallapreddy, Siddharth Bhardari, Alex Albert</td>
</tr>
<tr>
<td>Potomac 5</td>
<td>HSW-64</td>
<td>Role Of Safety Training In Reducing Fatigue Among Construction Workers</td>
<td>Mostafa Namian, Ahmed Al_Bayati, Chukwuma Nnaji</td>
</tr>
</tbody>
</table>

#### Track 6: Contracting, Project Delivery, and Legal Issues

<table>
<thead>
<tr>
<th>Room: Potomac 6</th>
<th>CDL-04</th>
<th>Sharing Risk Contingency Costs In Construction Joint Venture Agreements: A Cooperative Game Theory Approach</th>
<th>Radwa Elisa, Yasmena Shahin, Mohamed S. Eid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potomac 6</td>
<td>CDL-14</td>
<td>Major Causes Of Claims And Disputes On Transportation Public-Private-Partnership Projects</td>
<td>Omar Shabana, Ghada M. Gad</td>
</tr>
<tr>
<td>Potomac 6</td>
<td>CDL-42</td>
<td>Management And Contract Allocation Of Geotechnical Risks On Mega Design-Build Infrastructure Projects</td>
<td>Hajer Dawoodo, Ghada Gad</td>
</tr>
<tr>
<td>Potomac 6</td>
<td>CDL-54</td>
<td>Selection Factors For Progressive Design-Build Delivery Method</td>
<td>Behzad Esmailii, Ruqya Alameri</td>
</tr>
</tbody>
</table>

#### Track 7: Computer Applications, Information Modeling, and Simulation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Potomac 5</td>
<td>CAS-56</td>
<td>Use Of Digital Human Modeling For Estimating Physiological Workloads Of Construction Tasks</td>
<td>Lynn Shehab, Hiam Khoury, Sal Af-Qaid</td>
</tr>
<tr>
<td>Potomac 5</td>
<td>CAS-63</td>
<td>Optimization Of Labor Flow Efficiency In Steel Fabrication Project</td>
<td>Leila Zadehi, Ming Lu</td>
</tr>
<tr>
<td>Potomac 5</td>
<td>CAS-72</td>
<td>A Bim-Enabled Dashboard System For Construction Project Monitoring And Control</td>
<td>Veerassak Likhitrungsilp, Photios G. Ioannou, Pimpriuet Nantapanuwat</td>
</tr>
</tbody>
</table>

#### Track 8: Advanced Technologies and Data Analytics

<table>
<thead>
<tr>
<th>Room: Fairfax</th>
<th>AOT-30</th>
<th>Virtual Reality And Construction Industry: Review Of Current State-Of-Practice And Future Opportunities</th>
<th>Jazmin Lopez, Siddharth Bhardari, Matthew Hallowell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potomac 6</td>
<td>AOT-39</td>
<td>Worker-Aware Robotic Motion Planner In Construction For Improved Psychological Well-Being During Worker-Robot Interaction</td>
<td>Yihi Liu, Houtan Jiebili</td>
</tr>
<tr>
<td>Potomac 6</td>
<td>AOT-50</td>
<td>Developing A Comprehensive 3D Point Cloud Dataset For Construction Projects</td>
<td>Hong Huang, Cheng Zhang, Lei Fan</td>
</tr>
</tbody>
</table>

#### Track 9: Infrastructure Systems, Sustainability and Resilience

<table>
<thead>
<tr>
<th>Room: Prince William</th>
<th>ISR-54</th>
<th>Empirical Analysis OF Factors Associated With Financial Loss Due To Hurricane Harvey</th>
<th>Frederick Chung, Baabak Ashuri</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potomac 6</td>
<td>ISR-96</td>
<td>Challenges And Risks In Resilience Management Of Water And Wastewater Infrastructures</td>
<td>Nikhiltha Adepu, Sharanesh Kermanshachi, Elina Safapour, Apura Pamidimukkala</td>
</tr>
<tr>
<td>Potomac 6</td>
<td>ISR-116</td>
<td>The Impact Of Natural Disaster Affected Housing Service Sector On The Interrelated Industries</td>
<td>Kwanghyuk Im</td>
</tr>
<tr>
<td>Potomac 6</td>
<td>ISR-124</td>
<td>Natural Disasters, Inequality, And Civil Infrastructure Systems: A Social Sensing Approach For Identifying Socioeconomic And Physical Vulnerabilities</td>
<td>Mostafa BatoulI, Deepri Joshi</td>
</tr>
</tbody>
</table>
Thursday March 10, 2022
Session 2: 2:30 pm - 3:30 pm

Track 1: Construction Education
CED-16 Evaluating The Effectiveness Of Extracurricular Online Workshops On Student Learning In Construction
Yewande Soneyon Abraham, Bilge Gökhan Aşlık, Max Frazier Spamer, Natalie Mansiôn

CED-40 Learning Factory For Construction To Provide Future Engineering Skills Beyond Technical Education And Training
Jochen Teizer, Christos Chronopoulos

CED-01 Integration Of Virtual Technology As A Pedagogical Tool In Construction Knowledge Transfer
Ramyan Sengupta, Anthony E. Sparkling

CED-02 Developing Context And Practice-Based Curricula In Construction Engineering Education And Management
Diana Marcela Franco Duran

Track 2: Health, Safety, and Workforce Issues
HSW-73 Do Qtha 10/30-Hour Training Programs Revamp The Safety Attitudes Of Construction Workers?
Mostafa Niamani, Mohammadreza Mofarah Tafazoli, Shararat Korme-Rashadi, Voesi Projects

HSW-59 Working Safety With Drones: A Virtual Training Environment For Workers On Heights
Idris Ijtanli, Masoud Ghaisar, Eduardo Mendez, Gilles Albeanu, Patrick Brophy

HSW-60 Enhancing Workers’ Vigilance To Electrical Hazards Through A Virtually Simulated Accident
Nayem Gun Kim, Changbum Ryan Ahn, Austin Miller, Robert Dibelio, Daniel Lobello, Song Yong, Oh, Ann Mccnamara

HSW-75 Impact Of Hazard State On Construction Workers Safety Risk Assessment
Abdullahi Ibrahim, Chulakwuma Nnaji, Mahmoud Shakouri, Mostafa Niamani

Track 3: Automation in Construction
AIC-26 Exploring The Use Of Mobile Technologies For Highway Construction Inspection
Mammadouh Mohamed, Dan Tran

AIC-33 Automated Visual Inspection Planning For Prefabricated Modules With 3D Laser Scanning
Rachel Hye Son, Kevin Han

AIC-34 Automated Vision-Based Building Energy Assessment Using Drone Thermography
Shayan Mirzabeigi, Mohamad Razakani

Track 4: Project and Organizational Management and Planning
PMP-11 Barriers & Motivators Of Knowledge Sharing In A Virtual Engineering Office
Marilyn Karam, Hala Sanboksani, Daoud Koomjain, Issam Sair

PMP-71 Review Of Current Practices To Implement Organization-Wide Knowledge Repositories
Siddharth Banerjee, Abdullah Alsharief, Edward Jaseelski, Kalyan Piratla

PMP-38 The Effect Of The Economic And Social Motivations On Knowledge Sharing Behavior In Megaprojects: A Mediating Effect Of Environmental Dynamism
Hui He, Qinghua He, Ge Wang, Xiaowei Liu, Jun Zhu

PMP-27 Understanding Organizational Improvisation In Construction Megaprojects
Kaiwen Jiang, Yun Le, Xian Zhang, Xinyue Zhang

Track 5: Computer Applications, Information Modeling, and Simulation
CAS-68 Automated Prioritization Of Requirements To Support Risk-Based Construction Inspection Of Highway Projects Using LTM Neural Network
Toeyn Le, Fahad Uu Hassan

CAS-71 Applicability Of Artificial Intelligence (AI) Methods To Construction Manufacturing: A Literature Review
Mohsen Hatami, Suman Paneru, Ian Flood

CAS-75 Analyzing Passenger Flow Lines And Optimizing The Facility Layout Management For Cairo Metro Elevated Stations
Helen Saher Ghali, Khalid Nasser, Yasmine Essawy, Abdellahim Abdullah

CAS-76 Simulation Of An Earth Embankment Dam In Adverse Rainy Weather
Hady Saher Ghali, Khalid Nasser, Yasmine Essawy, Abdellahim Abdullah

Track 6: Contracting, Project Delivery, and Legal Issues
CDL-02 Precontract Negotiations In Design-Build Projects
Elf Deniz Oguz Erkal, Keith Molenaar

CDL-19 Current State Of Practice In Selection And Implementation Of Airport Project Capital Project Delivery Methods
Phuong H.D. Nguyen, Daniel Tran

CDL-05 Project Performance Comparison Of Vertical Projects Versus Horizontal Projects
Praman Prasad Shreedha, Elina Prapapati

CDL-07 Impacts Of Alternative Contracting Methods For Utility Coordination Of Transportation Projects
Tariq A. Omer, Roy Sturgill, Timothy Taylor

Track 7: Computer Applications, Information Modeling, and Simulation
CAS-09 A Framework For BIM, BaaS, And Iot Data Exchange Using Semantic Web Technologies
Shu Tang, Cheng Zhang, Jianli Hao, Fangyu Guo

CAS-06 Identifying Pervasive Research Topics In Facility Maintenance Information And Xr Visualisation Via Text Mining
Daniel Weeks, Fernanda Leite

CAS-43 A Bim Information Processing Framework To Facilitate Enriched Bim Applications
Ran Ren, Jiannong Zhang, Yunfeng Chen, Hazar Nicholas Dib

CAS-44 Digital Twin-Aided Healthcare Facility Management: A Case Study Of Shanghai Tongji Hospital
Ying Song, Yongkui Li

Track 8: Advanced Technologies and Data Analytics
ADT-06 Designing An Automated Multi-Objective Optimization Model For Integrated And Sustainable Farming
Ossama Hosny, Elkhayam Dorra, Ahmed El-Esamba, Khalef Taher, Ibrahim Abotaleb, Mariam Amer, Mostafa Faraouk, Hiba Gad, Yomna Abd El Raouf, Adham Sherif, Yousaf Hussien

ADT-07 State-Of-The-Practice Of Big Data In Decision Making Processes Within The Construction Industry
Joao Victor Stedile Zolin, Katherine Maslak

ADT-43 Measuring The Impact Of Information Display Methods On Ar Hmd For Comprehending Construction Information With Aug
Yimin Qin, Tanyel Bulbul

ADT-66 An Investigation Of Visualization Technologies For Remote Work In The Architecture, Engineering And Construction Industry
Oluwatobiola Samuel Sowumini, Linyuqing Song, Randi Scheiber, Zia Din Ud

Track 9: Infrastructure Systems, Sustainability and Resilience
ISR-52 Socioeconomic And Housing Vulnerability'S Role To Decision Time For Reconstruction In Puerto Rico After Hurricane Maria
Tommey Sarkar, Dr. Cristina Poleacovici, Dr. Ivit Garcia Zambrana, Dr. Carl F Weems, Dr. Kaoru Ikuma, Issam Sair

ISR-20 Knowledge And Perception Of Single-Family Residential Building Resilience And Its Impact On Disaster Evacuations Decisions
Giovanna Fusco, Jin Zhu

ISR-28 Integrating Social Equity And Vulnerability With Infrastructure Resilience Assessment
Suniel Dhakal, Lu Zhang

ISR-35 Vulnerability Of Southwest Florida Water Infrastructure Under The Impacts Of Hurricane
Long D Nguyen, Senoshaw Tsegaye
Track 1: Construction Education

CED-09 Integrating Front-End Planning And Infrastructure Sustainability In Construction Education Through Problem-Based Learning
Valentina Ferrer, Mohmed Elzomor, Rubaya Rahat, Piyush Pradhananga

CED-12 A Network-Based Approach To Understand Potentials For On-The-Job Training In Construction Professions
Xi Chen, Mohamad Ibleji

CED-13 Unmanned Aircraft Vehicles In Construction And Engineering Higher Education Programs
Christofor M. Harper, Mohmmed Malehy, Manish Parajuli

CED-21 Improving BIM Integration And Implementation In Construction Education
Sriyan Song, Mohammad Ammar Alzarrad, Sunghin Kim

CED-30 Students Perceptions Of Instructional Delivery Methods Utilizing Various Teaching Modalities In An Integrated Construction Management Curriculum
Joseph Cheary, Stacy Kolegraff, Andrew Kline

Track 2: Health, Safety, and WORKforce Issues

HSW-80 Health And Safety Of Construction Field Workforce Active In Extreme Weather Conditions
Sangna Karthick, Sharanam Karmannachahi, Issa Ramaji

HSW-82 Utility Of Wearable Sensing Devices For Environmental Monitoring On Construction Sites
Ibukun Aseolu, Antonio Martinez-Molina, Chukwuma Nnaji, Miltiadis Alamaniotis, Tulio Sulbaran

HSW-83 Effect Of Time Pressure And Cognitive Demand On Line Workers’ Risk-Taking Behaviors: Assessment Of Neuro-Psychophysiological Responses In A Mixed-Reality Environment
Shiva Pozdolavid, Sogon Hassanadeh, Beyza Kiper, Aditya Mane

HSW-88 Safety Innovation Adoption In Construction: Role Of Safety Compliance And Safety Attitude
Tolulope Sanni, Chukwuma Nnaji, Ibukun Aseolu, Ahmed Al-Bayati

HSW-57 The Construction Industry From The Perspective of the Worker’s Social Experience
Basaam Ramadan, Tim R. B. Taylor, Kevin J. Real, Paul Goodrum

Track 3: Automation In Construction

AIC-02 A Goal-Oriented Framework For Implementing Change In Off-Site Construction In The Industry 4.0 Era
Fatima Alikak, Farook Hamahe, Mohamad Al-Husaini, Hadiят Yu

AIC-09 Exoskeleton Training Through Haptic Sensation Transfer In Immersive Virtual Simulation Training
Yang Ye, Yangming Shi, Jing Yu, Youngjie Lee, Garret Burks, Diyya Sami

AIC-13 Real-Time And Automatic Detection Of Welding Joints Using Deep Learning
Diyon Lee, Guangbo Yin, Kevin Han

Track 4: Project and Organizational Management and Planning

PMP-06 Identifying Multilevel Metrics For Construction Competency And Performance Measures
Yoshika Tadase Gebretikel, Annalyn Robinson Fayek

PMP-13 Exploring Trends In Risk Statements Among Design And Construction Of Scientific Research Facility Projects
Evan Dicks, Keith Molenaar

PMP-05 A Data-Driven Construction Project Overall Performance Model
Hiba Jallal, Aaw S. Hanna, Waifs Latifallah

PMP-20 Collaborative Planning Strategies In Construction Projects: A Factor Analysis Approach
Amir El-Sanh, Islam El-Adawy

PMP-46 New Heuristic Model Of Section Network Compression Process For Large-Scale Networks
Silas Stewart, Yoojung Yoon

Track 5: Engineering and Materials Design, Quality, and Value Management

EOV-15 Streamlining Wall Concepts Of Office Buildings For Developing Countries: The Case Of Malaysia
Carmen Y. M. Tan, Rahimi A. Rahman, Bo Xia, Qing Chen

EOV-20 Upstream Digitized Materials Tracking By Vendors And Suppliers: Barriers, Drives, And Benefits
Verena Schneider, David Grau

EOV-25 Strategies For Enhancing Construction Waste Recycling: A Fuzzy Synthetic Evaluation
Rahimi A. Rahman, Maen M. A. Omer, Saud Almuntairi

EOV-21 Multi-Objective Optimization Model To Minimize Upgradation And Utility Costs Of Large Existing Buildings
Mahdi Ghalloori, Muataasem Abdallah

EOV-08 Unveiling Value Creation In Mega-projects From The Perspective Of Stakeholder Value Network
Ouyang Lixia, Zheng Xian, Li Yongkui, Pang Bo, Gao Xinglin

Track 6: Contracting, Project Delivery, and Legal Issues

CDL-13 Longitudinal Study Of Information Management In University Construction Contracts
Ameila Celisao, Daniel P. De Oliveira, Fernanda Leite

CDL-15 Leveraging Alternative Technical Concept For Contract Delivery Of Accelerated Bridge Construction
Piyush Pradhananga, Mohamad Elzomor

CDL-21 Dimensions Of Innovation In Project Delivery Method Selection For Highway Projects
Vasiuiki Demetropoulos, William O’Brien, Nabeel Kharma

CDL-27 State-Of-The-Art Review On The Applicability Of Natural Language Processing (NLP) Methods To Address Legal Issues In Construction
Fahid Ul Hassan, Yuen Le

CDL-03 Fairly Apportioning Concurrent Delay Liability: A Game Theory Approach
Hu Trong Huynh, Gunnar Lucks, Mohamad S. Eid

Track 7: Computer Applications, Information Modeling, and Simulation

CAS-14 Modeling Requirements For The Development Of Extended Reality Applications In Construction Projects: A Literature Review
Bing Han, Fernanda Leite

CAS-69 Framework And Case Studies For Context-Aware Ar System (CaaS) For Ubiquitous Applications In The AEC Industry
Gabriela Flores Linares, Nazia Roofigari-Esfahani, Daniel Antonio Linvac-Garcia

CAS-07 Vision-Based Recognition Of Construction Worker’S Hand Signals
Xin Wang, Zhenhua Zhu

CAS-48 Neural Networks In The Construction Industry: Knowledge Gaps And Possibilities
Emil I. Jacobsen, Jochen Teszar

Track 8: Advanced Technologies and Data Analytics

ADT-01 Challenges Of Implementing E-Ticketing For Rural Transportation Construction Projects
Gena Robertson, Su Zhang, Susan M. Bogus

ADT-02 Developing A Bim-Based Linked Data Digital Twin Architecture To Address A Key Missing Factor: Occupants
Sorosh Sobhkhiz, Tamer El-Diry

ADT-39 Exploratory Study On Applications, Benefits And Challenges Of Using Data Analytics In Construction Industry
Manideep Tummalampudi, Christofor M Harper, John Killingsworth, Prajita Mithe, Sri Ram Murthy Suryav

ADT-24 Towards A Readiness Assessment For Wireless Technologies For Highway Construction And Infrastructure Asset Management
Ami Tripathi, Hala Nasserdeen, Gabriel Dadi, Roy F Sturgill

Track 9: Infrastructure Systems, Sustainability and Resilience

ISR-01 Evaluating Of Safe-To-Fail Criteria For Coastal City
Rubaya Rahat, Mohmed Elzomor, Piyush Pradhananga

ISR-45 Analyzing Critical Impacting Factors On The Future Of Bridges To Support Bridge Planning
A.M.M. Muhaimin, Lu Zhang, Xuan Lv, Nipesh Pradhananga, Vamsi Sai Kalapaddu

ISR-45 Information Fusion And Finite Element Model Simulations For Bridge Condition Prognosis With Conflicting Data
Zheng Xian, Pingbo Tang, Ying Shi

ISR-55 A Data Integration Approach For Assessment Of Rainfall-Induced Slope Failure Susceptibility
Anil Baral, Mohen Shahandahti
Friday March 11, 2022
Session 4: 9:30 am - 10:30 am

Track 1: Construction Education
CED-04 Assessing The Impact Of Humanitarian Engineering Coursework On Upper-Division Undergraduate Engineering Identity Development
Leigh Hamlet, Jessica Kaminsky
CED-41 Concept Maps Lead To Better Problem Statements: An Empirical Study Measuring The Effects Of Priming Students To Think In Systems
Paulo Ignacio, Julie Milovanovic, Tripp Shealy, John Gero
CED-42 Concept Maps Decrease Students' Neurocognitive Demand When Thinking About Engineering Problems
Ushma Manandhar, Mo Hu, Julie Milovanovic, Tripp Shealy, John Gero
CED-33 The Impact Of Remote Learning On College Students' Workload And Productivity During The Covid-19 Pandemic
Biao Kuang, Chi Tian, Hongyuue Wu, Yunfeng Chen, Luciana Debs

Track 2: Health, Safety, and Workforce Issues
HSW-20 A Novel Map Matching Algorithm For Relating Work Zones And Crashes Enhanced Situational Awareness In Worker-Robot Interaction In Construction: Assessing The Role Of Visual Cues
Zhuroan Zhang, Burcu Akinici, Sean Qian
HSW-26 Spatial Exposure To Dynamic Safety Hazards In Construction Sites Through 360-Degree Augmented Panoramas: Ecological Validity In Safety Research
Shayan Shayesteh, Houtan Jebelli
HSW-27 Investigation Of Factors Impacting Situation Awareness Of Highway Workers And Applicable Warning Methods
Wenjun Han, Nazila Roofigari-Esfahan, Ginny Nayyar

Track 3: Automation in Construction
Potomac 1
AC-16 Intention Estimation In Physical Human-Robot Interaction In Construction: Empowering Robots To Gauge Workers' Posture Barrier Analysis Of Effective Implementation Of Robotics In The Construction Industry
Yidi Liu, Houtan Jebelli
AC-21 Digital Twin In The Architecture, Engineering And Construction Industry: A Bibliometric Review
Amit Ojha, Mahmoud Habibnezhad, Houtan Jebelli, Robert Leicht
AC-22 An Integrated Supervised Reinforcement Machine Learning Approach For Automated Clash Resolution
Manea Almatarde, Heux Liu, Shengxian Tang, Mohammed Sulaiman, Zhai Lei, Hong Xian Li

Track 4: Project and Organizational Management and Planning
Potomac 2
PMP-72 Knowledge Exchanges In Complex Project Networks: Influence Model
Meltem Duva, Dong Zhao, Sinem Mollaoglu, Kenneth A. Frank
PMP-77 Network Topologies And Team Performance: A Comparative Study Of Aec Projects
Meltem Duva, Sinem Mollaoglu, Dong Zhao, Kenneth A. Frank
PMP-15 An Integrated Sustainability Performance Criteria Checklist For Sustainable Public Housing Projects
Asma Almhade Sharafeddin, Ingrid Arocho
PMP-18 Human Values In Sustainable Construction Management: A Literature Review
David Gutierrez, Leidy Klotz

Track 5: Advanced Technologies and Data Analytics
Potomac 3
ADT-01 A Sensor-Based Empirical Framework To Measure Construction Labor Productivity
Phuong Nguyen, Aminah Robinson Faye, Farook Hamzeh
ADT-83 Simplified Emissions Measurement System For Construction Equipment
Jochen Teizer, SÁ Ren Wandahl
ADT-89 Effectiveness Of A Real-Time Parking Guidance System
Deepak Kharhialyala Sharma, Scott Parr, Aycan Kara
ADT-45 Synthetic Training Image Dataset For Vision-Based 3D Pose Estimation Of Construction Workers
Jinwoo Kim, Sanghyun Lee, Daeho Kim, Julienne Shah

Track 6: Contracting, Project Delivery, and Legal Issues
Potomac 4
CDL-29 Enabling Faster Project Delivery Through Use Of Construction-Driven Designs
Aleksandra Markovic Graff, Jesus M. De La Garza
CDL-27 Determining Contract Requirements For Quality Assurance Program In Innovative Project Delivery
Jung Hyun Lee, Ivan Mistur, Lier Liu, Baabak Ashuri
CDL-39 Cmar Procurement In U.S. Public Projects: Qualifications-Driven Processes And Criteria
Hala Sanboskani, Mounir El Asem, Bahaa Chamoun, Oscar Bou Maachar
CDL-48 A Comparison Of Georgia Dot’S Design-Build Legislation And Project Expenditures With Those Of Bordering States
Wedey Mitchell, Raed Jarrah, Chang-Ray Chen

Track 7: Computer Applications, Information Modeling, and Simulation
Arlington
CAS-39 Simulating Urban Population Activities Under Extreme Events With Data-Driven Agent-Based Modeling
Haiyan Hao, Yan Wang, G Wang
CAS-46 The Concept Of Digital Twin For Construction Safety
Jochen Teizer, Karsten W. Johansen, Carl Peter Leslie Schultz
CAS-19 Management Solutions For Cyber-Physical Security In Smart Built Environment
Ping Xu, Xinghua Gao, Phillip Agee
CAS-26 Capturing Dynamics Of Uas-Based Construction Safety Management Using Causal Loop Diagram
Soowon Chang, Kyungki Kim, Jinhuyuk Kwon, Sungjin Kim

Track 8: Advanced Technologies and Data Analytics
Fairfax
ADT-46 Emergency Management In Smart Cities: Infrastructure-Less Communication Systems
Mohammad Ilbeigi, Aita Mortesa, Ramtin Bhsani
ADT-61 A Theoretical Architecture For Data-Quality-Aware Analytical Applications In The Construction Firms
Xi He, Rui Liu, Chaima Anumula
ADT-19 Exploring The Capabilities Of Optical Satellite Imagery To Evaluate Pavement Condition
Mohammad Bashar, Cristina Torres-Machi
ADT-23 Drivable Space Extraction From Airborne Lidar And Aerial Photos
Ryan Dow, Su Zhang, Susan Bogus, Fei Han

Track 9: Infrastructure Systems, Sustainability and Resilience
Prince William
ISR-67 Towards Sustainable Management Of Disaster Debris: Three-Phase Post-Disaster Data Collection Planning
Hiba Jalilou, Juyeong Choi, Sybil Derrible, Nazli Yesiller
ISR-70 Disasters As Mega-Disruptions To Construction Supply Chains
Erik Arneson
ISR-18 Exploring Challenges To Implement An Integrated Urban Infrastructure Management Approach
Felipe Araya, Sebastian Vasquez
ISR-83 A Literature Review On The Human Dimension In Water-Energy Nexus
Zhong Ren, Jintao Zhang, Iram Sifat, Wenjun Xiang, Wei Zhang, Baikun Li, Jin Zhu
Track 1: Construction Education

CED-08: Construction Industry Institute's Impact On Construction Engineering And Management Academic Publications
CED-18: Operationalization Of Desirable Skill Sets In Novel Construction Management Professionals
CED-37: Relationship Between Student Engagement And Academic Network Properties

Room: Potomac 1

Verena Schneider, David Grau, Samuel T. Arianaran
Amelia Celoz, Fernanda Leite, Daniel P. da Oliveira
Daniel Yasuha Agymang, Patrick Sit Wai Hong, Erased Kiss
Zhiting Chen, Dong Zhao

Track 2: Health, Safety, and Workforce Issues

HSW-19: Towards A Safety Culture Model For Small Construction Organizations
HSW-23: Review Of Safety Resilience In Construction: Current Research Status, Challenges, And Future Needs
HSW-40: Preventative Safety Metrics With Highways Maintenance Crews
HSW-47: Review For Construction And Demolition Waste Materials And Control Practices In The U.S.

Room: Potomac 2

Ashrafur Ammar, Zaman Al-Shabbani, Gabriel Dadi
Joshua D. Robbins, Jun Wang, Behdad Emaeili
Zamaam Al-Shabban, Ashrafur Ammar, Gabriel Dadi
Abdulaziz Alwadhanyan, Xiaojun Yeon, Raydan Sharma

Track 3: Automation in Construction

AIC-30: Utilizing Text Analysis In Systematic Review Design: Perceptual And Cognitive Barriers To Adoption Of Robotic And Automated Systems In Construction
AIC-39: De-materialization In Housing Industry: Modular Light Wood-Frame Structure Vs Conventional Wood-Frame Structure For Multi-Family Housing
AIC-47: Towards Intelligent Agents To Detect Work Pieces And Processes In Modular Construction: An Approach To Generate Synthetic Training Data
AIC-48: The Need For Responsive Environmental Braving Flexibility To Clinic Spaces

Room: Potomac 3

Edward Sih-Taylor, Christopher McCarty, Mayha Sam, Bryan Franz
Azrou Sadoughi, Gregory Slodtokie
Keundoo Park, Semlia Ergan
Daniel Bin Lu, Semlia Ergan, Devin Mann, Katharine Lawrence

Track 4: Project and Organizational Management and Planning

PMP-43: Lean Adoption For Trade Contractors:Benefits, Barriers, And Path Forward
PMP-48: Development Of Key Performance Indicators For Performance Assessment Of Owner'S Project Managers
PMP-85: Erms Maturity And Its Impact On Project Cost And Schedule Performance Of Large And Complex Projects: A Preliminary Analysis
PMP-81: Construction Business Strategies Used By General Contractors In The United States For Market Enhancement

Room: Potomac 4

Elzin Asadull, Robert Leicht, John Messer
Shantanu Kumar, Mohammed S. Hashem M. Mahany
Mohun El Alsum, G. Edward Gibson, Jr., Vartemin Aramali, Hala Sansombani
Haiyan Sally Xie, Jayraj Singh Solanki, Owen Shi

Track 5: Health, Safety, and Workforce Issues

HSW-79: Physical, Mental, And Emotional Health Of Construction Field Labors Working In Extreme Weather Conditions: Challenges And Overcoming Strategies
HSW-12: Feasibility Of A Mobile Electroencephalogram (EEG) Sensor-Based Stress Type Classification For Construction Workers
HSW-16: Lean-Based Integrated Approach For Manual Work Design Optimization In Modular Construction
HSW-28: A Study On Assessing The Health Related Illnesses In The Construction Industry

Room: Potomac 5

Sanjigna Karthick, Shararen Kermanshachi, Mostafa Namian
Gaang Lee, Sanghyun Lee
Ahmed Zaaltouk, Sangheyo Han
Siyuan Song, Fan Zhang

Track 6: Contracting, Project Delivery, and Legal Issues

COL-10: Identifying Contingency Liability From P3 Contracts Using Rule-Based Nlp
COL-09: In The Name Of The Pandemic: A Case Study Of Contractual Modifications In Ppp Solicited And Unsolicited Proposals In Covid-19 Times
COL-18: Ppp Renegotiation Flight Simulator: A System Dynamics Model For Renegotiating Ppss After Pandemic Crisis
COL-24: Investigating Financial Risks Associated With Public-Private-Partnership For Transportation Project Delivery

Room: Potomac 6

Yu Wang, Qingbin Cui, Kunqi Zhang, Mie Liang
Gabriel Castiblanco, Jose Guevara, Paula Mendez-Gonzalez
Gabriel Castiblanco, Jose Guevara, Paula Mendez-Gonzalez
Mehrsharyee Joshi, Christofer M. Harper, John Killingsworth, Suren Chen

Track 7: Computer Applications, Information Modeling, and Simulation

CAS-31: An Optimal Resource Allocation Strategy For Retrofitting Unreinforced Masonry Buildings In The Pre-Disaster Stage
CAS-36: Household-Targeted Hurricane Warnings For Effective Evacuation: Case Study Of Hurricane Irma In North Miami Beach

Room: Arlington

Mohammad Sada Fardhosseini, Amit Oljaj, Mahmoud Nababanad, Houtan Jebelli, Hyoung Woo Lee
Patrick Borges Rodrigues, Paul Crowella
Md Asiquur Rahman, Lu Zhang, Kingsley Lua
Xuan Lu, Parasar Gosain
Shangde Gao, Yan Wang, Qi Wang

Track 8: Advanced Technologies and Data Analytics

ADT-48: Real-Time Participatory Sensing-Driven Computational Framework Toward Digital Twin City Modeling
ADT-76: Case Study: Assessing The Structural Condition Of Steel Bridges Using Terrestrial Laser Scanner (TLS)
ADT-88: Network And Cluster Analysis On Bridge Inspection Reports Using Text Mining Algorithms
ADT-10: Characteristics-Based Network Analysis On Construction Hazard Warning: A Novel Approach Of Network Of Networks

Room: Fairfax

Jawyon Kim, YoungJib Ham
Hani Atraie, Luke Pomas, Ryan Trainor
Younghan Edwin Jung, Mignon Kang, Michael Myung Jeong, Junhyung Ahn
Mei Liu, Pin-Chao Liao

Track 9: Infrastructure Systems, Sustainability and Resilience

ISR-93: Homeowners’ Motivations To Invest In Energy-Efficient Technologies In Residential Buildings Of Rural Midwest America
ISR-122: Human-In-The-Loop Model Predictive Operation For Energy Efficient Heat Systems

Room: Williams

Behdad Rouhaniadeh, Shararen Kermanshachi
Behdad Rouhaniadeh, Shararen Kermanshachi
Linnel Marie Ballesteros, Cristina Polescovschi, Ulrike Pasae, Kristen Cetin, Anne Kimber, Diba Malekpour Koupae, Tanya Sharma, Forrest Douglass
Mostafa Meinand, Farrokh Jazizadeh

Session 5: 11:00 am - 12:00 pm

Friday March 11, 2022
Friday March 11, 2022
Session 7: 2:45 pm - 3:45 pm
Track 1: Engineering and Materials Design, Quality, and Value Management

Room: Potomac 1
EQV-03 Cost Analysis Of A Mass Timber Building Project: Comparison Of Budgeted And Actual Construction Cost
Shafayet Ahmed, Ingrid Acroco

EQV-04 Identifying the Level Of Awareness And Challenges To Adopt Mass Timber By The Construction Practitioners In The United States
Shafayet Ahmed, Ingrid Acroco

EQV-17 Lead Assessment Of Green Lightweight Concrete Containing Plastic Based Aggregate In Construction
Fahad K. Alghatani, Ibrahim Abotalib, Sara Harb

EQV-12 Performance Of Engineered Cememtious Compostive Material Under Differing Site Conditions
Michele Anderson, Susan Bogus

Track 2: Health, Safety, and Workforce Issues

Room: Potomac 2
HSW-25 Construction Hazard Recognition: A Smart Literature Review
S M Jamiil Uddin, Abdullah Alsharef, Alex Albert, Siddharth Bhandari

HSW-54 Noise Management In Construction: Identifying Strategies And Controls For Improvement
(Names not available in text)

HSW-09 Musculoskeletal Disorders In Concrete Formwork Construction
Ziyu Jin, John Gambatese

HSW-51 Biomechanical Analysis In Construction Engineering And Management Research: A Review
Abdullahi Ibrahim, Chukwuma Nnaji, Ziyu Jin

Track 3: Automation in Construction

Room: Potomac 3
AIC-50 Automated Process Data Collection For Modular Construction Using Computer Vision
Rodhan Panahi, Joseph Louis, Ankur Podder, Colby Swanson

AIC-65 A Decision Support System For The Integration Of Robotics In Offsite Construction
Behnam M. Tahiani, Cagri Goksal Omerdeviren, Aladdin Alisw

AIC-35 Graphical Networks For Optimizing Hospital Layout At Macro And Micro Scales
Jennifer L. Lather, Andrew I. Harms

AIC-43 Drone-Related Deployment Limitations In Construction: A Research Roadmap
Gilles Albeano, Massoud Gheisari, Raja R. A. Issa

Track 4: Project and Organizational Management and Planning

Room: Potomac 4
PMP-21 Mitigating The Winner’S Curse Dilemma In Multi-Stage Construction Bidding
Muaz Ahmed, Islam El-Azawy, Kalyan Coatney

PMP-35 Front End Planning For Industrial Projects: Identifying The Reasons Behind Schedule And Cost Overruns Using The New Pdri Matrs
Namho Cho, G. Edward Jr. Gibson, Mounir El Asmar

PMP-42 Are Different Innovations More Challenging To Implement: A Comparison Of Different Types Of Changes In The Aec

PMP-51 A Framework For Assessing Strategies To Combat Individuals’ Resistance To Technological Innovation In The Construction Industry
Yelley Kweya Lawwuy, Fangyu Guo, Kaiyang Wang

Track 5: Construction Scheduling, Estimating, Economics, and Controls

Room: Potomac 5
CEC-14 Framework Of Automatic Cycle Schedule Management Based On Bim Technology
Yushao Jia, Ding Liu

CEC-17 Feasibility Of An Integrated Heuristic And Machine Learning Approach For Schedule Health Monitoring In Construction
Yoonhwa Jung, Fouad Amer, Manol Golvparvar-Fard

CEC-30 Developing Assessment Criteria For State Dots’ Standard Specifications On Contractor Schedules
Byung Gi Han, Junghye Son, Nabeel Khwaaja, William J. O’Brien

CEC-06 Construction Insurance-Machine-Learning Estimation Approach For Multiple Attempted Bids
Ayman El Hakea, Mohamed S. Eid

Track 6: Infrastructure Systems, Sustainability and Resilience

Room: Potomac 6
ISR-38 Comparison Of Different Blue-Green Infrastructure Strategies In Mitigating Urban Heat Island Effects And Improving Thermal Comfort
Siqi Jia, Yuhong Wang

ISR-94 Assessment Of The Relative Importance Of The Main Parameters Used In The Selection Of The Urban Heat Island Mitigation Strategies Incorporating The Human Factor In Modeling Interdependent Infrastructure Systems
Mohamed Abdel Raheem, Bahareh Bathaei

ISR-37 The Envision Rating System Helps Shape Public Preferences For Sustainable Stormwater Design
Joseph Jonathan Magoua, Fei Wang, Nan Li

ISR-117 Mo Hu, Tripp Shealy

Track 7: Computer Applications, Information Modeling, and Simulation

Room: Arlington
CAS-23 A Survey Of Trends Of Building Fire Simulation In The Architecture, Engineering, And Construction (AEC) Domains
Fan Yang, Jiansong Zhang, Bedrich Benes

CAS-27 Computer Vision-Driven Building Energy Modeling Framework For Post Occupant Interior Energy Consumption
Pochien Yu, Mingshun Tseng, Jacob J. Lin

CAS-73 Exploring Human-Building Energy-Related Actions Modeling And Simulation
Seddigh Hoorouzi, Amirhossein Safari

CAS-80 Issues In Bi-Directional Interoperability Between Bim And Bem
Hang Li, Jiansong Zhang, Xiaorui Xue, Luciana Sparkling, David Goldwasser

Track 8: Advanced Technologies and Data Analytics

Room: Fairfax
ADT-77 Energy And Demand Saving Potential Due-To Integrated Hvac, Lighting, And Shading Controls In Small Office Buildings
Soham Vanage, Hao Dong, Kristin Cotet

ADT-71 Nudging Occupants For Energy-Saving Through Voice-Based Proactive Virtual Assistants
Tianzhi He, Farrokh Jazizadeh

ADT-08 Aging In Smart Buildings: How Can Smart Buildings Support The Cognitively Impaired Aging Population
Saeid Alimoradi, Xinghua Gao

ADT-17 Estimating Construction Work Zones’ Capacity Using Deep Neural Network
Ali Hassandosht Mashhadikia, Nikolai Markovskia, Abbas Rashidi

Track 9: Infrastructure Systems, Sustainability and Resilience

Room: Prince William
ISR-100 Key Components In Schedule Development Of Post-Disaster Reconstruction Projects
Elnia Safapour, Sharareh Kermanshachi

ISR-07 Transitioning To The Next Era Of Modular Construction: Reconfiguration, Reuse And Building Stock Agility
Christopher Rausch, Sheila Shalhi, Adz Dhamani, Carl Haas

ISR-12 Digitalization, Digitalization And Digital Transformation (3Ds): Explicating The Disparities And Applications Of The 3Ds In The Construction Industry
Emmanuel Kingford Owusu, Albert P. C. Chan, Linyan Chen, Peter Amoah

ISR-34 Factors And Indicators To Assess Sustainable Development Goals (Sdg) In Public Works Procurement
Laura Montalban-Domingo, Tatiana Garcia-Segura, Maria Amalia Sanz Beniloch, Eugenio Pellicer
Friday March 11, 2022
Session 8: 4:15 pm - 5:15 pm

Track 1: Engineering and Materials Design, Quality, and Value Management
- Room: Potomac 1
  - EQV-06 Structural Behaviour Of Composite Reinforced Concrete One-Way Slabs Voiced With Plastic Bubbles
    Amer Mohammed Ibrahim, Ibrahim Abbas
    Rouwaida Hussein Ali
  - EQV-10 Life Cycle Cost Assessment Of Green Lightweight Concrete Utilizing Recycled Plastic Based Lightweighted Aggregates
    Fahad K. Alqantari, Ibrahim Abotaleb, Mohamed Elmenshawy
  - EQV-26 Investigation Of Relationship Between Geotechnical Parameters And Electrical Resistivity Of Sandy Soils
    Mina Zamanian, Mohsen Shahandashti
  - EQV-13 Identifying And Prioritizing Criteria For Selecting Sustainable Façade Materials Of High-Rise Buildings
    Fouria Mohammadi, Amir Mohammad Ramezanianpour, Abdolmajid Erfani

Track 2: Health, Safety, and Workforce Issues
- Room: Potomac 2
  - HSW-07 Leveraging Natural Language Processing To Identify Health And Safety Challenges During Post-Disaster Reconstruction
    S M Jami Uddin, Mahzabin Tamanna, Alex Albert, Nipesh Pradhanga
  - HSW-38 Hiring For The New Age: Job Advertisements And The Transportation Workforce
    Kristal Metro, Susan M. Bogus, Christopher Harper
  - HSW-62 Investigating Hazards And Safety Risks Inherent In Human-Robot Interactions
    Heeey Okpala, Chukwuma Nnaji, John Gambatese
  - HSW-74 Scale Equivalence In Canada And The United States For Interpersonal Conflicts At Work And Individual Resilience In The Construction Sector
    Yuting Chen, Brenda Mccabe, Jun Wang, Douglas Hyett

Track 3: Automation in Construction
- Room: Potomac 3
  - AIC-44 Bim Integration And Value Engineering: Design for Assembly, Optimization And Real Time Cost Visualization In Off-Site Construction
    Arun Sekhar, Uma Maheswari
  - AIC-54 Information Exchange For Supporting Bim To Robotic Construction
    Austin Dennis Mcclymonds, Somayeh Asadi, Robert Leicht, Alan Wagner
  - AIC-03 Named Entity Recognition Algorithm For Bisds Using Neural Network
    Ning Wang, Raja R. A. Issa, Chaimay J. Anumba
  - AIC-40 Extraction Of Activities Information From Construction Contracts Using Natural Language Processing (NLP) Methods To Support Scheduling
    Fahad Ul Hassan, Tuyen Le

Track 4: Project and Organizational Management and Planning
- Room: Potomac 4
  - PMP-52 Digital Technology In Architecture, Engineering And Construction (Aec) Industry: Research Trend And Practical Status Towards Construction 4.0
    Kaiyang Wang, Fangyu Guo, Chenguang Zhang, Jianli Hao, Dirk Schafer
  - PMP-60 Identification Of The Barriers To Data-centric Approach In The Construction Industry
    Ali Kari, John Mesoner, Robert Leicht, Christopher McComb
  - PMP-64 A Comparative Analysis Of Production Metrics Across Vdc Implementations
    Tullika Majumdar, Steiner G. Rasmussen, Alexandre Almeida Del Savio, Katrina DOnnevecottir, Illir Hjelkahti, Martin Arthur Fischer
  - PMP-78 Transition To Supervision: A Skill Gap Analysis Between Female And Male Construction Supervisors
    Callie Thomacon French, Susan Bogus

Track 5: Construction Scheduling, Estimating, Economics, and Controls
- Room: Potomac 5
  - CEC-01 Economic Vulnerability Assessment Of The Construction Industry In The United States
    Arkiprabha Bhattacharyya, Makarand Hastak
  - CEC-23 Prediction Of Egypt'S Construction Industry Resilience
    Ahmed Gamal Shiba, Ekhayam Dorra
  - CEC-24 Integrated Dematel And Anp-based Framework To Model Construction Labor Productivity
    Ali Bayedeh, Elyar Pourrahimian, Ming Lu, Simaan Aboorvish
  - CEC-26 Cost Estimate Risk Factors In U.S. Army Corps Of Engineers' Emergency Streambank Protection Projects
    Hunter Waqaman, Mohammad Ammar Aizarrad, James Bryce

Track 6: Infrastructure Systems, Sustainability and Resilience
- Room: Potomac 6
  - ISR-17 Designing A Communication Practice To Build Community Capacity For Safer Housing
    Briar Goldwyn, Amy Javernick-Will, Abbie Liet, Matthew Kochmann
  - ISR-32 Identifying And Assessing Critical Indicators Of Resilience In Active Construction Sites
    M Ahmed Rusko, Md Nizamul Hoque Moudjer, Arif Mohamim Sadi, Lu Zhang
  - ISR-22 Identifying The Commonalities Between Lean Construction And Lean Requirements
    Emad Sadikoglu, Seviyl Dimirkisenc, Chengyi Zhang
  - ISR-74 Benchmarking Drinking Water Consumption During Construction Phase
    Hasem Izaei Moud, Kenneth Sands, Craig Capano, Jalen Vowels, Kaley Stockinger, Jeanette Hariharan

Track 7: Computer Applications, Information Modeling, and Simulation
- Room: Arlington
  - CAS-12 Machine Learning Enabled Automatic Vehicle Detection For Virtual Weigh-In Motion Applications
    Mohammad Affar Suuon, Fei Dai
  - CAS-10 Visual Surveying Of On-Road Vehicle Height For Over-Height Warning Using Deep Learning And View Geometry
    Linjun Lu, Fei Dai
  - CAS-11 A Convolutional Neural Network Model For Identifying Unclassified And Missclassified Vehicles Using Spatially Pyramid Pooling
    Jiyee Bao, Xiaoliang Hu, Yi Jiang, Shuo Li
  - CAS-70 Development Of Virtual Reality-Based Driving Simulator For Assessing Digital Speed Feedback Signs
    Qichao Wang, Dong Zhao, Timothy Gates, Peter Savolianen

Track 8: Advanced Technologies and Data Analytics
- Room: Fairfax
  - ADT-67 Blockchain-based Methodology For Collaborative Risk Assessment Mining And Visualizing Cost And Schedule Risks From News Articles With Nlp And Network Analysis
    In Bae Chung, Carlos Caldas
  - ADT-55 AI-Based Methodology For Collaborative Risk Assessment Mining And Visualizing Cost And Schedule Risks From News Articles With Nlp And Network Analysis
    Nan Gao, Ali Touran, Qi Wang
  - ADT-04 Artificial Intelligence Application For Risk Template Generation In Major Transportation Projects
    Abdulmajeed Erfani, Veronica Hercules Villeda, Qingbin Cui
  - ADT-70 Machine Learning And Artificial Intelligence Applications In Building Construction: Present Status And Future Trends
    Mahnaz Ensafi, Saied Amlorandi, Xinhua Gao, Walid Thabet

Track 9: Infrastructure Systems, Sustainability and Resilience
- Room: Prince William
  - ISR-40 A Unified Tool To Foster Front-End Planning And Sustainability In Infrastructure Projects
    Valentina Ferrer, Piyyush Pradhanga, Mohamed Elzamor
  - ISR-53 Energy Infrastructure Scenarios For Reducing Distribution Losses And Carbon Emissions Using Multithreaded Simulation With Gis
    Soowon Chang
  - ISR-56 Developing A Sustainability And Resilience Monitoring Scheme For Infrastructure Projects Using Sustainable Development Goals (Sdgs)
    Shantana Kumar, Mohammd S. Hashem M. Mehany
  - ISR-59 Governing Contractor Greenwashing Behaviors In Construction Projects: The Heterogeneous And Interactive Roles Of Formal Contracts And Trust
    Dliun Wang, Ge Wang, Yuan He, Yang Li
Saturday March 12, 2022
Session 9: 8:15 am - 9:15 am

Track 1: Engineering and Materials Design, Quality, and Value Management

- EQV-16: Mistakeproofing Framework And Applications In Civil Engineering Operations And Products
- EQV-17: Modular Adaptability Of Hospital Design (MaHd): Proposing A Design And Construction Methodology For Flexible And Adaptive Hospitals
- EQV-23: Literature Review Of Residential Above Ground Storm Shelter
- EQV-09: Critical Constructability Review Indicators For Construction Of Transportation Infrastructure

Room: Potomac 1

- EQV-16: Irsh D. Tommelle, Karolin Yu
- EQV-17: Gordon Xu, Ar Daniel Mark Hall, David Grossmann, Konrad Graser
- EQV-23: Bi Zhang, Ayaj Shanker
- EQV-09: Minerva Bonilla, William Radford, Amin Akhounlou, Nick Norboge, Daniel Fendley, Clare Fullerott

Track 2: Health, Safety, and Workforce Issues

- HSW-06: Incident Investigations And Learning: Methods, Barriers And Opportunities
- HSW-18: Assessing The Safety Climate Of A State Department Of Transportation Through Its Highway Maintenance Crews
- HSW-22: Annual Revenues’ Influence On The Safety Performance Of Construction Firms
- HSW-42: Safety Risks Of Reconstruction Workers In Clear Up And Recovery Phase Due To Natural Hazards

Room: Potomac 2

- HSW-06: Shreeja Thaliapudedy, Sridharth Bhandari, Matthew Ryan Hallowell, Fred Sherratt, Ivan Stoddard, Hayley Hansen
- HSW-18: Ahtaurat Ammar, Zaman Al-Shabban, Gabriel Dadi
- HSW-42: Amini Jamshidi, Hani Al-Rashidy

Track 3: Automation in Construction

- CAS-05: Built In Versus Standalone Code Checking The Class Of Automated Egress Path Checker
- CAS-51: Computer Vision-Based Geometry Mapping And Matching Of Building Elements For Robotic Construction Applications

Room: Potomac 3

- CAS-05: Abdulhamid Abdullah, Khalid Nasser, Alaa Mandour
- CAS-29: Arijita Pal, Jacob J. Lin, Shang-Hsien Hsieh
- CAS-51: Christopher Lacy, Jiansong Zhang

Track 4: Project and Organizational Management and Planning

- PMP-87: Determinants Of Operating Organization Selection In Urban Rail Transit Project Under Public-Private Partnerships
- PMP-40: Assessing Automation Readiness Of Recurring Pavement Failure In Developing Countries: Case Studies Of Nigeria And Jordan
- PMP-49: Comparative Analysis Of Right Of Way Acquisition Processes By State DOTs

Room: Potomac 4

- PMP-87: Xian Zhang, Rui Li, Long Yi Han, Ying Jia Chen, Xiao Hu
- PMP-40: Olugbenga Ogundrindie, Ifeanyi Udodilim Okpala, Raphael Ojedoti Abiodun, Opayemi Oyeypio, Muhammad Teyser Hatamleh
- PMP-49: Frederic Chung, Babak Ashuri

Track 5: Construction Scheduling, Estimating, Economics, and Controls

- CEC-42: Optimization Of Multi-Skilled Labor With The Application Of Partial Allocation Of Resources
- CEC-32: An Artificial Intelligence Based Model For Construction Activity Sequence Prediction In Highway Projects
- CEC-15: Construction Procedural Information Extraction From Textual Sources To Support Scheduling
- CEC-11: Global And Local Risk Factors Causing Correlation Between Activities In Fuzzy Linear Schedules

Room: Potomac 5

- CEC-42: Amira Saleh, Ibrahim Abotaleb, Osama Hosny
- CEC-32: Hamed Alikhani, David Jeong
- CEC-15: Ran Ren, Jiansong Zhang
- CEC-11: Yi Su, Shabtai Isaac, Gunnar Lucko

Track 6: Infrastructure Systems, Sustainability and Resilience

- ISR-08: Graph-Based Simulation For Cyber-Physical Attacks On Smart Buildings
- ISR-30: Smart Building Conceptualization: A Comparative Analysis Of Literature And Standards
- ISR-39: Measurement And Verification And Model Validation To Evaluate Energy And Demand Savings From Smart Building Technologies In A Residential, Controlled Laboratory
- ISR-48: Digital Twin Cities: Data Availability And Systematic Data Collection

Room: Potomac 6

- ISR-08: Rahul Agarwal, Na Meng, Xinghua Gao, Yuqing Liu
- ISR-30: Alireza Borhani, Aleh Borhani, Carrie Sturts
- ISR-39: Dossick, Julie Jupp
- ISR-48: Yi Chu, Debrudra Mitra, Kristen Cetin

Track 7: Computer Applications, Information Modeling, and Simulation

- CAS-05: Design And Development Considerations For Construction Virtual Reality Training Modules: A Case Study
- CAS-30: Perceptions Of Augmented And Virtual Reality Technologies Adoption Within The Aec Industry
- CAS-79: Semi-Automated Generation Of 3D Bridge Models From 2D PdF Bridge Drawings

Room: Arlington

- CAS-05: Ibrahim Abotaleb, Osama Hosny, Kahled Nasser, Sahar Bader, Mohamed Elrifae, Salma Ibrahim, Yasmin El Hakim, Mohamed Sherif
- CAS-30: Yash Balali, Xiang Guo, Soheil Fathi, Arsalan Heydarian
- CAS-79: Temitope Akambi, Jianos Zhang

Track 8: Advanced Technologies and Data Analytics

- ADT-33: Non-Intrusive Method For Capturing Occasional Thermal Discomfort Cues For Early-Stage Advisory System For Energy Conscious Design Of Building Facade Systems
- ADT-05: A Shearlet Transform-Based Method For Automated Rebar Recognition Using Gip B-Scan Image Data
- ADT-70: Temporary Traffic Control Device Detection For Road Construction Projects Using Deep Learning Application

Room: Fairfax

- ADT-33: Nidae Ines Bucrelli, Nora El-Gohary
- ADT-05: Zongming Xing, Ge Du, Abbas Rashidy, Ali H Moshadi
- ADT-70: Ryubung Kang, Donghui Chen, Kuangchi Xu, Kim, Dan Koo, Myungjin Chae, Sungchul Seo, Hyung-Keun Park

Track 9: Infrastructure Systems, Sustainability and Resilience

- ISR-78: Construction Assessment Framework Of Electrical Transmission Structures From Decommissioned Wind Turbine Blades
- ISR-99: Constructing Electric Conductive Pavement Using A More Sustainable Method
- ISR-126: Online Engagement Of Facility Users In Rehabilitation Decision Making
- ISR-121: Experimental Study Of Mechanical Connectors For Application In Rebar Cages

Room: Prince William

- ISR-78: Yulizza Henao, Russell Gentry, Tristan Al-Haddad, Lawrence C. Bank, John E. Taylor
- ISR-99: Mohamed Abdel Raheem, Mohammad Aris
- ISR-126: Ahmed Attala, Tamer El-Diraby
- ISR-121: Musood Vahedi, Hamed Ebrahimian, Ahmad Itani
**Track 1: Engineering and Materials Design, Quality, and Value Management**

**Room: Potomac 1**
- **EQV-14**: Exploring Utilization Of The 3D Printed Housing As Post-Disaster Temporary Shelter For Displaced People
  - Karthik Subramanaya, Sharareh Kermanshachi

**Room: Potomac 2**
- **HSW-30**: Smart Robotic System To Fight The Spread Of Covid-19 At Construction Sites
  - Jonathan Seagers, Yuli Liu, Houtan Jobelli

**Track 2: Health, Safety, and Workforce Issues**

**Room: Potomac 3**
  - Oskhovbera Ogunrinde, Ifeanyi Udoidiim Okpala, Muhammad Tyveer Hatamolah, Opeyemi Oyewopo, Raphael Abidun Ojeilabi

**Track 3: Automation in Construction**

**Room: Potomac 4**
- **AIC-68**: Application Of Concrete 3D Printing For Bridge Construction: Current Challenges And Future Directions
  - Seyedeh Sara Miryousset, Ali Kazemian, Amirhossein Jafari

**Room: Potomac 5**
- **CEC-05**: Determination Of Optimal Rolling Planning Period For The Management Of Bim-Based Construction Supply Chain Processes
  - Qian Chen, Borja Garcia De Soto, Bryan T. Adey

**Track 4: Project and Organizational Management and Planning**

**Room: Potomac 1**
- **PMP-08**: A Framework To Measure The Cost Of Controversy Surrounding Energy Saving Construction Projects
  - Michaela Lapatin, Lauryn Spearling, Helena Tiedmann, Olga Kavadiya, Maria Giorda, Jean Danielou, Kasey M. Faust

**Room: Potomac 2**
- **PMP-01**: Mapping The Preconstruction Project Development Process For Transportation Projects
  - Tanin Ahmed Haidary, Dennis C Bauman, Ajay S Jadhav, Mashrur Chowdhury

**Track 5: Construction Scheduling, Estimating, Economics, and Simulation**

**Room: Potomac 3**
- **CCE-33**: Building Optimization Model For Minimizing Operation And Maintenance Costs
  - Mahdi Ghafouri, Moatassem Abdallah

**Room: Potomac 4**
- **CEC-34**: Estimating Electricity Consumption Of Buildings Using Information Theory And Machine Learning Methods
  - Mahdi Ghafouri, Moatassem Abdallah

**Track 6: Infrastructure Systems, Sustainability and Resilience**

**Room: Potomac 5**
- **CEC-43**: Linear Optimization Model For Scheduling Repetitive Construction Projects With Multiple Crews
  - Shahtyar Monghasemi, Moatassem Abdallah

**Room: Potomac 6**
- **ISR-100**: Development Of Innovative Strategies To Enhance The Resilience Of The Critical Infrastructure
  - Thahomina Jahan Nipa, Sharareh Kermanshachi, Karthik Subrananaya

**Track 7: Computer Applications, Information Modeling, and Simulation**

**Room: Arlington**
- **CAS-81**: The Effects Of Liv-Captured Image Degradation Issues On The Quality Of 3D Reconstruction
  - Hani Alzraiea, Jessica Mcarthur, William Francis Killmendon

**Track 8: Advanced Technologies and Data Analytics**

**Room: Fairfax**
- **ADT-40**: Construction Worker Ergonomic Assessment Via Lstm-Based Multi-Task Evaluation Of Uav Height Configuration Factors And Their Impacts On Photogrammetric Survey Accuracy
  - Jianne Cai, Xin Li, Xiaoyan Liang, Wei Wei, Yajie Liu, Kevin Han, William Raddorf

**Track 9: Infrastructure Systems, Sustainability and Resilience**

**Room: Prince William**
- **ISR-19**: Using Wastewater Flow To Understand Water System’S Demand Behavior During Covid-19 Pandemic In An Urban Metropolitan City In Texas
  - Amal Bakhan, Arkajyoti Roy, Kasey M. Faust

  - Nathalie Thelemaque, Lauryn Spearling, Kasey Faust, Jessica Kaminsky

**Session 10:**

**Saturday March 12, 2022**

**10:30 am - 11:30 am**
- **KS-200**: A Spatial-Dynamical Model For Understanding The Spread Of Covid-19 In A Residential Area
  - Mohammad Ali Jafari, Seyed Mahdi Mafzul, Bahar Nourbakhsh, Nader Pishva, Kasey M. Faust
Track 1: Advanced Technologies and Data Analytics

- **ADT-63**: A Natural Language Processing-Based Approach For Clustering Construction Projects
  - Chau Le, Taewoo Ko, H. David Jeong

- **ADT-12**: Forecasting Field Production Using Machine Learning Time Series
  - Johnny Sawma Awad, Issam Soum, Bassel Safa, Sena Asaf

- **ADT-25**: #Covid-19: Understanding Construction Industry Responses On Twitter In The Emergence Of Novel Coronavirus
  - Priyanka Linge, M. Ahmed Rusho, Md Asraf Ahmed, Arif Mohaimin Sabri

- **ADT-68**: E-Ticketing Technology In Construction Projects: Adoption, Benefits, And Challenges
  - Karthik Subramanya, Sharareh Kermanshachi

Track 2: Health, Safety, and Workforce Issues

- **HSW-21**: Reducing Harassment For Women In The Professional Construction Workplace With Zero Tolerance And Interventionist Policies
  - Candice Sexton, Jiansong Zhang

- **HSW-37**: Occupational Health And Safety Challenges In Construction Industry: A Gender-Based Analysis
  - Apurva Pandidimukkala, Sharareh Kermanshachi

- **HSW-69**: Analysis Of Gender Perception In The Construction Sector: Columbian Case
  - Cristian Camilo Osorio GPAmez, Marieth Stephany Castro Forero, Candice Sexton, Jiansong Zhang, Lina VerPéReza Zuluaga Botero

- **HSW-76**: A Gender Analysis Of Construction Executive Career Path Progression Using Linkedin Data
  - Paul J. Hickey, Verónica Hercules Villaleda, Adam Johnson, Abdo Majid Erfani, Qingbin Cui

Track 3: Computer Applications, Information Modeling, and Simulation

- **CAS-34**: Construction Site Segmentation Using Drone-Based Ortho Image And Convolutional Encoder-Decoder Network Model
  - Yuhan Jiang, Siu Han, Yong Bai

- **CAS-52**: Augmented Reality Communication On Active Construction Sites: A Pilot Study Exploring Non-Technological Factors
  - Rita El Kassi, Steven Ayer, Mounir El Alamar, Pingbo Tang

- **CAS-55**: Adaptation Of A Contractor’S Risk Behavior In A Competitive Bidding Environment
  - Rita Awwad, Wram Elirani

- **CAS-57**: Earthwork Surface Creation And Volume Computation Using Uav 3D Mapping
  - Nickolas Villalobos, Hani Atrairae

Track 4: Project and Organizational Management and Planning

- **PMP-18**: Understanding And Comparing The Different Fund Levels In Airport Improvement Projects: A Graph Theory Approach
  - Ramy H. Khaled, Islam El-Adaway

- **PMP-23**: Improved Project Planning Strategies For Transportation Assets: The Necessity Of Early Stakeholder Involvement
  - Katherine Masiak Madson, Bukola Oni

- **PMP-36**: A Pre-Demolition Planning Framework To Balance Recyclability And Productivity
  - Hiba Jallouli, Ana Daniela Pinto, Juyoung Choi

- **PMP-62**: Project Team Collaborations During Time Of Disruptions: Transaction Costs, Knowledge Flows, And Social Network Theory Perspective
  - Hasan Gokberk Bayhan, Sinem Mollaoglu, Hansha Zhang, Kenneth A. Frank

Track 5: Construction Scheduling, Estimating, Economics, and Controls

- **CEC-09**: Machine Learning Framework To Predict Last Planner System Performance Metrics
  - Lynn Shehab, Diana Salhab, Elyor Pourrahimian, Karim Nouiehid, Gunnar Lucko, Farokh Hamzah

- **CEC-45**: A Rating Score For Assessing The Risks And Challenges Associated With Modular Construction
  - Mohamad Abdul Nabi, Islam El Adaway

- **CEC-44**: Benefits Of Building Information Modeling In Road Projects For Cost Overrun Factors Mitigation
  - Omar Sánchez, Karen Castaneda, Rodrigo F. Herrera, Eugenio Pellicer

Track 6: Infrastructure Systems, Sustainability and Resilience

- **ISR-10**: A Framework For Evaluating Societal Impacts Caused By Disruptions To Inland Waterways
  - Katherine Masiak Madson, Jennifer Lather

- **ISR-15**: Framework For Measuring Infrastructure Vulnerability And Resilience Of Communities During A Flood Disaster
  - Anisha Deira, Yong-Choel Lee, Pedram Ghanad

- **ISR-107**: Analysis Of The Resilience Management Dimensions Based On Project Complexity Level
  - Thahomina Jahan Nipa, Sharareh Kermanshachi, Ronik Ketan Kumar Patel

- **ISR-108**: Analysis Of Investment Decision-Making Factors In Resilience Improvement Of Transportation Infrastructures
  - Thahomina Jahan Nipa, Sharareh Kermanshachi, Sarinjia Karthick

Track 7: Computer Applications, Information Modeling, and Simulation

- **CAS-15**: Semi-Automated Conversion Of D10 Orthographic Views Of Wood Building Components To 3D Information Models
  - Temitope Akanbi, Oscar Wong Chong, Jiansong Zhang

- **CAS-16**: Interactive Visual Representation Of Inter-Connected Requirements In Building Codes
  - Xiaoru Xu, Jiansong Zhang, Nora El-Gohary

- **CAS-17**: Analyzing The Impact Of Covid-19 Pandemic Risks On Construction Projects In Developing Countries: Case Of Iraq
  - MI K.S. Ali Mhdawi, Mario Brito, Bhakti Stephan Onggo, Hatim A. Rashid

- **CAS-20**: Desktopeye: A Desktop-based Eye-Tracking System For 3D Model Review Analysis
  - Yangming Shi, Jing Du

Track 8: Advanced Technologies and Data Analytics

- **ADT-62**: Feasibility Assessment And Enhancement Of Tof Based Uwb Rtls For Non-Line-Of-Sight Conditions On Construction Sites
  - Tian Jin, Farnaz Sadeghpour

- **ADT-26**: A Framework For Edge-Based Ubiquitous Hazard Identification And Proactive Safety Management
  - Jungho Jeon, Hubo Cai

- **ADT-74**: Early Pilot Deployment Of A Decision Making Framework To Select Wearable Internet Of Things Devices For Safety On Construction Sites
  - Ibukkan Awolusi, Tutu Sulbaran

- **ADT-82**: Worker Safety And Health Activity Monitoring In Construction Using Unmanned Aerial Vehicles And Deep Learning
  - Ibukkan Awolusi, Aliu Akinmoseyni, Debaditya Chakraborty, Ahmed Al-Bayati

Track 9: Infrastructure Systems, Sustainability and Resilience

- **ISR-75**: Comparing Impacts Of Indoor Environmental Quality Factors On Satisfaction Of Occupants With Different Genders And Ages Between Office- And Home-Based Work Environments
  - Xingzhou Guo, Yunfeng Chen

- **ISR-86**: Impacts Of The Covid-19 Pandemic On Services Utilization And Energy Consumption In Healthcare Facilities: Evidence From Shanghai Municipal Hospitals
  - Yongkui Li, Lingyan Cao, Jiansong Zhang, Yi Yang

- **ISR-97**: Analyzing The Resilience Of Construction Firms Through Resilience Indicators
  - Sai Akhila Bodditi Reddy, Ingrid Arocho

Saturday March 12, 2022
Session 11: 11:00 am - 12:00 pm