

Registered participants/presenters can access any session and the EG-ICE General Assembly meeting online: <https://aarhusuniversity.zoom.us/j/64935000561> (* Papers to be presented online)

Wednesday, July 6, 2022

08.30	<p>EG-ICE 2022 Opening Ceremony</p> <p>EG-ICE 2021 Awardee presentation (Mathias Artus, Bauhaus-University Weimar: IFC based Framework for Generating, Modeling and Visualizing Spalling Defect Geometries)</p>
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Session 1

Session Chair: Ian Smith

09.30	<p>33 End-to-end GRU Model for Construction Crew Management Song, Z., Florez-Perez, L.</p> <p>57 Automating the Estimation of Productivity Metrics for Construction Workers Using Deep Learning and Kinematics Jacobsen E. L., Teizer J.</p> <p>49 Self-supervised Learning Approach for Excavator Activity Recognition Using Contrastive Video Representation Ghelmani A., Hammad A.</p>
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10.30	<p>Networking Break</p>
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Session 2

Session Chair: TBD

11.00	<p>56 BIM-based Fall Hazard Ontology and Benchmark Model for Comparison of Automated Prevention through Design Approaches in Construction Safety Johansen K.W., Schultz C., Teizer J.</p> <p>55 BIM Standards and Classification Systems in Data Validation Jensen F., Gade P.</p> <p>46 SFS-A68: a Dataset for the Segmentation of Space Functions in Apartment Buildings Ziaee A., Suter G.</p>
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12.00	<p>Keynote 1 - Engineering education challenges: Learning to solve real-world problems by working interdisciplinary, remotely, and with the latest technology Mario Wolf and Bianca Wolf</p>
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12.45	<p>Lunch break</p>
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Session 3

Session Chair: Laura Florez-Perez

13.30	44	Integration of Wave-Based Non-Destructive Survey Results into BIM Models Artus M., Schickert M., Lai J., Koch C.
	31	Optimizing IFC-structured Data Graph for Code Compliance Checking Schatz Y., Domer B.
	20	Enabling Federated Interoperable Issue Management in a Building and Construction Sector Oraskari J., Schulz O., Werbrouck J., Beetz J.

Session 4

Session Chair: Rafael Sacks

14.30	22	Integrated Data-driven and Knowledge-based Performance Evaluation for Machine Assistance in Building Design Decision Support Chen X., Saluz U., Staudt J., Margesin M., Lang W., Geyer P.
	8	Requirements for Event-driven Architectures for Open BIM Collaboration Esser, S., Abualdenien, J., Vilgertshofer, S., Borrmann, A.
	3	Development of an Ontology for the Representation of Firefighters' Data Requirements during Building Fire Emergencies Guyo E., Hartmann T.

15.30	Networking Break	
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Session 5

Session Chair: TBD

16.00	35	Linking Early Design Stages with Physical Simulations using Machine Learning; Structural Analysis Feedback of Architectural Design Sketches Rasoulzadeh S., Senk V., Kovacic I., Reisinger J., Füssel J., Hensel M.
	40	Reconstruction of Wind Turbine Blade Geometry and Shape Matching of Airfoil Profiles to Point Clouds Bermek M., Gentry R.
	32	Cross Domain Matching for Semantic Point Cloud Segmentation based on Convolutional Neural Networks Martens J., Blut T., Blankenbach J.

Session 6

Session Chair: TBD

17.00	43	A Framework for Virtual Prototyping-Based Design of Operator Support System for Construction Equipment Vahdatikhaki F., Makarov D., Miller S., Doree A.
	41*	Nonintrusive Behavioral Sensing and Analytics for Supporting Human-Centered Building Energy Efficiency Huang K., Liu K.
	52*	Evaluating the Performance of Deep Learning in Segmenting Google Street View Imagery for Transportation Infrastructure Condition Assessment Wei Y., Liu K.

Thursday, July 7, 2022

Session 7

Session Chair: TBD

08.30	5*	Modeling and Validating Temporal Rules with Semantic Petri-Net for Digital Twins Liu H., Song X., Gao G., Zhang H., Liu Y., Gu M.
	27*	A Digital Twin-driven Deformation Monitoring System for Deep Foundation Pit Excavation Chen K., Liu Y., Hu R., Fang W.
	30*	An Efficient and Resilient Digital-twin Communication Framework for Smart Bridge Structural Survey and Maintenance Gao Y., Li H., Xiong G.

Session 8

Session Chair: TBD

09.30	4*	MVDLite: a Fast Validation Algorithm for Model View Definition Rules Liu H., Gao G., Zhang H., Liu Y., Song Y., Gu M.
	13*	Semantic Segmentation of Building Point Clouds based on Point Transformer and IFC Wei S., Gao G., Ke Z., Fan G., Liu Y., Gu M.
	15*	A Redundancy-free IFC Storage Platform For Multi-model Scenarios based on Block Hash Li S., Gao G., Wang W., Liu H., Zhu S., Gu M.

10.30	Networking Break
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Session 9

Session Chair: TBD

11.00	6	A Comprehensive Data Schema for Digital Twin Construction Schlenger J., Yeung T., Vilgertshofer S., Martinez J., Sacks R., Borrmann A.
	38	The Role of Simulation in Digital Twin Construction Yeung T., Martinez J., Sharoni L., Sacks R.
	42	Platology: A Digital Twin Ontology Suite for the Complete Lifecycle of Infrastructure Khan R., Tomar R., Hartmann T., Ungureanu L., Chacón R., Ibrahim A.

12.00	Keynote 2 - How Dependable is the Digital Twin? John S. Fitzgerald and Peter Gorm Larsen
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12.45	Lunch break
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Session 10

Session Chair: TBD

13.30	11	Uncertainty and Sensitivity Analysis of Building Integrated Photovoltaics Chen, L., Tian, W., de Wilde, P., Zhang, H.
	34	Computation of Ranges in Interval-based Constraint-Geometry of Building Models Kirchner, J.
	37	Factors Contributing to Measurement Uncertainty of HVAC-enabled Demand Flexibility in Grid-interactive Commercial Buildings Vindel E., Akinci B., Bergés M., Kavvada O., Gavan V.

Session 11

Session Chair: Christian Koch

14.30	23	Analyzing Operation Logs of Nuclear Power Plants for Safety and Efficiency Diagnosis of Real-Time Operations Xing J., Liu P., Tang P., Yilmaz A., Boring R., Gibson Jr G.
	26	Reinforcement Learning for Active Monitoring of Moving Equipment in 360-Degree Videos Nath N.D., Cheng C., Behzadan A.H.
	28	Design and validation of a mobile structural health monitoring system based on legged robots Smarsly K., Worm M., and Dragos K.

15.30	Networking Break
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16.00	EG-ICE General Assembly (1 hour)
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18.30	Gala Dinner (starts as scheduled)
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Friday, July 8, 2022

Session 12

Session Chair: TBD

08.30	17*	Real-Time Noise Sensing at Construction Sites based on Spatial Interpolation for Effective Reduction Measures Lee G., Moon S., Hwang J., Chi S., Rim D.
	36*	Automated Qualitative Rule Extraction based on Bidirectional Long Short-Term Memory Model Zhu X., Li H., Xiong G., Song H.
	47*	A Multi-Scenario Crowd Data Synthesis Based On Building Information Modeling Huang H., Gao G., Ke Z., Peng C., Gu M.

Session 13

Session Chair: TBD

09.30	48*	New Ways of Data Governance for Construction? Decentralized Data Marketplaces as Web3 Concept just around the Corner Bucher D. F., Hall D. M.
	50*	Design and Development of Heritage Building Information Model (HBIM) Database to Support Maintenance Chen W., Yuan J., Luo H.
	54	Fake it till you make it: Training Deep Neural Networks for Worker Detection using Synthetic Data Tohidifar A., Saffari S. F., Kim D.

10.30	Networking Break
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Session 14

Session Chair: TBD

11.00	21	IM2DR: Incentive Based Multi-tier and Multi-agent Approach for Demand Response in Electricity Market with Reinforcement Learning Abbasloo A., Valenzuela G., Gebhardt G.H.W., Tomar R., Piesk J.
	51	Point Cloud-Based Concrete Surface Defect Semantic Segmentation Using Modified PointNet++ Bolourian N., Hammad A., Ghelmani A.
	61	Automated Construction Payment Using Blockchain-Enabled Smart Contracts and Building Information Modelling Matameh S., Elghaish F., Rahimian, F. P., Dawood N.

Session 15

Session Chair: TBD

12.00	39	Leveraging Textual Information for Knowledge Graph-oriented Machine Learning: A Case Study in the Construction Industry Shahinmoghadam M., Motamedi A., Soltani M.M.
	60	A Critical Review on Methods for the Assessment of Trainees' Performance in Virtual Reality-based Construction Safety Training Harichandran A., Teizer J.

12.45	Lunch break
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13.30	Awards and Closing Ceremony
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13.45	Friday Afternoon Beer
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