Conference Day 2 / Monday, August 26, 2024 / icccbe 24 Montreal

ROOM	E2021	E2022	E2023	E2024	E2025
	M-1 : Education **Chair: Dai Tran**	**L-1 : Big Data, data mining, machine learning and artificial intelligence** **Chair: Joern Ploennigs**	**B-1 : Building Information Modelling** **Chair: Erik Poirier**	**N-1 : Advancing construction safety, health, and well-being** **Chair: Samaneh Gholitabar**	**G-1 : Virtual Reality and Augmented Reality (VR/AR)** **Chair: Silvio Melhado**
9:50	*23 - How to teach Civil Engineering in the Metaverse* **Niels Bartels**, Kristina Hahne, Nadine Wills	*15 - Machine Learning and Internet of Things for Construction Air Pollution Monitoring and Prediction* **Ruichuan Zhang**, Irene Paek, Samuel Park, Jenna Krall	*157 - BIM-Based Configuration System for Early Stages of Modular Residential Projects* **Bruno Llave SC**	*193 - Hazards Identification and Impact Reduction for At-Risk Construction Activities Using 3D BIM and VR* **Marcel Maghiar**, Sudeep Pangeni, Gustavo Maldonado, Soonkie Nam	*33-Ink or Pixels: Exploring the impact of hand-drawing skills on learning abilities in a Tech-Savvy Generation Z* **Jean-Pierre Basson**, Riëtte Kotzé
10:10	*149 - A Framework for Adaptive Learning and Teaching in Higher Education in Engineering* **Fulya Tasliarmut,** Mahsa Mirboland, Christian Koch	*25 - Transparency and Trust: Evaluating XAI for Critical Infrastructure Systems – A Comprehensive Analysis* **Jens Wala SC**	*4 - Assessment of Approaches to Enrich a Case Base for Design Decisions* **Daniel Napps**	*110 - A Knowledge Graph-based App. for Const. Safety Hazards Mngmt and Rectification Measures Intelligent Recommend.* **Yunfei Xiang SC**, Peng Lin, Yiming Luo, Houlei Xu, Zeyu Ning, Yu Qiao, Mengxia Zhou	*32-Architectural Design Revolution: Enhancing student learning through VR* **Jean-Pierre Basson**, Ashvin Manga
10:30	*259 - Developing Adaptive Educational Spaces through a theoretical framework based on Modularity and digital design* Salma Omrani, **Ivanka Iordanova**	*34 - Natural Language Communication with Sensor Data through a LLM-integrated Protocol: a Case Study* **Fanglai Jia SC**, Arianna Fonsati, Kjartan Gudmundsson	*12 - Enhancing design coordination across disciplines through incremental model updates and Inter-discipline Conjunction Graphs* **Sebastian Esser**, André Borrmann	*218 - Recurrent neural network-based workers' posture and workload estimation on building construction sites* **King Chi Lo**, Man Sau Tsoi, Francis Siu, Geoffrey Shen, Chi-Keung Lau	285-Virtual Reality Experience and Motion Sickness in Construction Human-Robot Collaboration Learning. **Adetayo Onososen SC**, Innocent Musonda, Thembani Moyo.
10:50	*221 - BIM training through a Project-Based Active Learning* Adam Yousfi, Nathalia De Paula, Cloé Arnould, **Brenda Da Silva Laurindo**, Ivanka Iordanova, Ali Motamedi, Erik Poirier	*35 - Integrating Machine Learning for Cyber Risk Analysis in Construction 4.0* **Dongchi Yao SC**, Borja García de Soto	*24 - Conceptual Framework for Integrating Building Information Modelling (BIM) with Pavement Management System (PMS)* **Retno Utami SC**, Carlos Osorio-Sandoval, Nicholas Thom	*268 - Implementation of Wearable Technologies for Enhancing Safety Monitoring in Construction Sites: A Trend Analysis* **Ayodele Fasoyinu SC**, Anoop Sattineni, JAMES TOYIN, Salman Azhar	*201-Evaluating Impact of Smart Technologies within Construction Site and Office operations among South African contractors* **Iruka Anugwo**, Johannes Mchunu, Jachike Anugwo
	C-1 : Civil (Construction) Information Modelling (CIM) **Chair: Satoshi Kubota**	**L-2 : Big Data, data mining, machine learning and artificial intelligence** **Chair : Marcel Heiß**	**B-2 : Building Information Modelling** **Chair: Erik Poirier**		
11:30	*14 - S-Digital Twins for Precast Concrete: Advancing Environmental Analysis through Integrated Life Cycle Assessment* **Simon Kosse SC**, Philipp Hagedorn, Jonas Maibaum, Markus König	*47 - Exploring the potential of BIM models for deriving synthetic training data for Machine Learning applications* **Simon Hoeng SC,** Friedrich Eder, Marc Schmailzl, Mathias Obergrießer, Thomas Linner	*41 - Development of a BIM-Based Decision Support System for the Building Circularity Assessment* Ihab Al-Qazzaz, Carlos Osorio-Sandoval, Serik Tokbolat, Georgia Thermou - Presenter : **Palihakkara Asha SC**		
11:50	*44 - AI-based integration of structural engineering knowledge in early design phases* **Martina Schnellenbach-Held**, Daniel Steiner	*56 - Image Segmentation for Enhanced Visualization and Accessibility of Historical Municipal Development Plans* **Phillip Schönfelder SC**, Husan Duski, Jonas Maibaum, Markus König	*45 - Towards end-to-end IFC based data management for the remodeling of existing buildings* **Friedrich Eder SC**, Simon Hoeng, Marc Schmailzl, Thomas Linner, Mathias Obergrießer		
12:10	*52 - Development of IFC River - a River Product Model for Realizing Digital Twins of the River System* **Atsuhiro Yamamoto**, Nobuyoshi Yabuki, Takashi Aruga, Kazuhiro Yamamoto, Tomohiro Fukuda	*60 - Optimizing Truck Allocation in Open-Pit Mining using a Deep Reinforcement Learning Policy* Mohsen Hatami, **Ian Flood**	*49 - BIM-based Generative Design: A Comprehensive Review across Key Domains* **Haolan Zhang SC**, Ruichuan Zhang		
	C-2 : Civil (Construction) Information Modelling (CIM) **Chair: Markus König**	**L-3 : Big Data, data mining, machine learning and artificial intelligence** **Chair: Ian Flood**	**B-3 : Building Information Modelling** **Chair: Ivanka Iordanova**	**Q-1 : Road and Highways construction** **Chair: Martina Schnellenbach-Held**	**G-2 : Virtual Reality and Augmented Reality (VR/AR)** **Chair: Habeb Astour**
14:10	*63 - Inspection Screening and Damage Visualization by Differential Analysis of 3D Point Cloud Data of Bridges* **Satoshi Kubota**, Yuito Sano, Kazuhiko Seki	*70 - Optimization of BIM Collaboration Format data analysis through advanced classification and information extraction* **Benedikt Kandler SC**, Marcel Heiß, Uwe Rüppel	*55 - Exploring the potential of digital signature of Building Information Models to improve trust, transparency, and traceability in construction projects* **Mehdi Fakour SC**, Erik Poirier	*132 - Asset management of municipal road infrastructure* **Markus Stoeckner**, Alexander Buttgereit, Ute Stoeckner	*140 - VR-based Computer Gaming Application in Digital Rehearsing of Mobile Crane Construction Operations* **Tan Qu**, Marwan Shaban
14:30	*64 - Updating and utilizing 3D point cloud data of road structures using multiple measurement devices* **ChiYuan Ho SC**, Satoshi Kubota	*82 - Quantum computing in civil engineering: Potentials and Limitations* **Joern Ploennigs**, Markus Berger, Martin Mevissen, Kay Smarsly	*62 - A Framework of ifcJSON-based Digital Twin Platform for Monitoring Building Environment using BIM, IoT, and Semantic Web Technologies* **Jihoon Chung SC**, Dennis Shelden	*133 - Impact of Municipal Referencing Basis on Methods of Road Condition Assessment* Markus Stoeckner, **Ute Stoeckner**	*204 - Augmented Reality Technologies in Education and Training: A Pathway to Enhancing the Built Environment* **Opeoluwa Akinradewo**, Clinton Aigbavboa, Douglas Aghimien, Devon Rocha, Samuel Adekunle, John Aliu
14:50	*126 - Time, Cost and Quantity Interoperability: a new common language for General Contractors* Simon Latreille, **Pierre Marcombe** French Presentation	*87 - Data-Driven Predimensioning: Applying Graph Neural Networks to Reinforced Concrete Design* **Nils Schäfer SC**, Jan Köhle, Joaquín Díaz	*69 - Development of an approach for digital diagnosis and monitoring of engineering structures using BIM as-built models* Habeb Astour, **Thorben Niemann**	*210 - Employing the Policy Gradient Approach for Strategic Decision-Making in Road Network Infrastructures* **Kotaro Sasai**	*228 - Implementation of VDC And Virtual Reality To Meet the Deadline and Budget of Work. Case Study: Utec Campus Barranco - FASE 02* Authors : **Luis L. Espinoza Cauti SC**, Enrique A. Juarez Aquino
15:10	*225 - Monitor. reduct. of SIUHI areas by thermographic measur. on green & gray infra. assets gene. Through project's CIM info* **Richard Mongeau SC**, Erik Poirier, Michèle St-Jacques French Presentation	*104 - A contribution to process-oriented graph data management for structural data exchange* **Marcel Heiß SC**, Christian-Dominik Thiele, Uwe Rüppel	*127 - A BIM-Based Assessment Method for Reusing Components from Existing Precast Concrete Buildings* Husam Al-Jawhar, Georgia Thermou, Carlos Osorio-Sandoval, Serik Tokbolat - Presenter : **Utami Retno SC**	*38 - Prediction of Expansion Joint Life in Concrete Pavements* Hui Rak Ahn, Young Kyu Kim, **Seung Woo Lee**	*160- Pre-design stage: computraizing communication between architects and clients using virtual reality (VR)* Omar Bagasi, **Nawari Nawari**
	C-3 : Civil (Construction) Information Modelling (CIM) **Chair: Nobuyoshi Yabuki**	**L-4 : Big Data, data mining, machine learning and artificial intelligence** **Chair: Ian Flood**	**B-4 : Building Information Modelling** **Chair: Ivanka Iordanova**	**D-1 : Urban/environmental planning and architecture** **Chair: Markus Stoeckner**	**J-1 : Facility management and BEMS/HEMS** **Chair: Philipp Hagedorn**
15:50	*190 - A VR Engineering Collaboration Framework: The BIM to VR pipeline* **Emmanouil Katsimpalis SC**, Carl Haas, Bryan Adey	*106 - Neural Network based defect classification in Real-Field rail inspection data augmented by simulated defects* **Georg Olm**	*53 - Unlocking BIM Potential: Empowering Collaboration through an Open Source-Powered BIM API Platform for Building Lifecycle Management* **Maximilian Gehring**, Michael Disser, Jens Wala, Uwe Rüppel	*151 - Unveiling the Spectrum of Personal Heat Stress Diversity in Buildings* Wooyoung Jung, **Prosper Babon-Ayeng SC**	*138 - Subzone-level demand control ventilation with fast occupancy adaptation to large spaces based on deep reinforcement learning* **Fangli HOU SC**, Jack Cheng, Helen H.L. Kwok, Jun MA
16:10	*206 - Maintenance Information System of Utility Tunnel Using 3D Point Cloud Data* **Sae Umemiya SC**, Satoshi Kubota, Ryosuke Hasegawa, Yoshihiro Yasumuro	*108 - An Image-Based Approach for Construction Site Monitoring and Documentation Using Machine Learning* Matthias Glunz, Florian Steinbach, Lina Wedekind, **Martina Mellenthin Filardo SC**, Jürgen Melzner	*57 - An Open-Source Approach for a Seamless BIM-GIS Integration* **Zhongxin Xia SC**, Benedikt Kandler, Jakob Schmidt, Vivien Volland, Pascal Mosler, Andreas Eichhorn, Uwe Rüppel	*263 - Data Collection for TRAP using Internet of Things* YI-HSUAN CHEN, **Albert Y. Chen SC**, Ta-Chih Hsiao	*198 - 2D and 3D Thermal Transition Presentation of Temperature Spikes in Net-Zero Energy Residential Test Facility* Yearim Yang, **Marcel Maghiar**
16:30	*277 - Construction technology tools impacting the AEC industry in the last 5 years* **James Toyin SC**, Anoop Sattineni, Ayodele Fasoyinu, Salman Azhar		*135-Evaluating the interoperability of 3D Visualization platforms in federated construction simulation settings* **Vahid Abbasianfar SC**, Mohammad Rezaul Karim, Stephen Hague, Yasser Mohamed.	*161 - Analyzing the Effect of Wind on Construction Schedules* **Samaneh Gholitabar**	*283 - A Driver Business Model: Triple Layer Business Canvas Model for Integr. Drivers of the Energy Effic. Market In Europe* Hussien Alkadri, **Nashwan Dawood**, Ammar Al-Bazi, Olugbenga Akinade