

Conference Programme



SUNDAY 19/10/2025 (17:00 – 19:00): Registration and Welcome Function, GSB (V&A Waterfront)		
MONDAY 20/10/2025		
Session	Venue A	Venue B
1 (8:30 -10:00)	Conference Opening & Invited Welcome Message, KEYNOTE LECTURES 1, 2	
Tea & coffee break (10:00 – 10:30)		
2 (10:30 - 12:30)	Human-technology Frontier, Data Modelling and Computing	Project Design, Construction, Planning, and Management
Lunch (12:30 -13:30)		
3 (13:30 – 15:00)	Panel Discussion 1: BIM Adoption in South Africa: Lessons Learned Internationally	
Tea & coffee break (15:00 – 15:30)		
4 (15:30 – 17:30)	Built Environment Monitoring, Analysis and Design	Big Data, Sensing, and Machine Learning
TUESDAY 21/10/2025		
5 (8:30 - 10:00)	KEYNOTE LECTURES 3, 4, 5	
Tea & coffee break (10:00 – 10:30)		
6 (10:30 - 12:30)	Building Information Management I	Joint session: Robotics / Urban Engineering
Lunch (12:30 -13:30)		
7 (13:30 - 15:00)	Panel Discussion 2: Bridging Digital Gaps for a Net-Zero Future	
Tea & coffee break (15:00 – 15:30)		
8 (15:30 - 17:00)	Asset and Facility Management, Operation, and Maintenance	Joint session: Reality Capture Technologies / Technology-enriched Engineering Pedagogy
Conference Dinner (18:00 – 22:00, bus transfer at 17:30)		
WEDNESDAY 22/10/2025		
9 (8:30 – 10:00)	KEYNOTE LECTURES 6, 7	
Tea & coffee break (10:00 – 10:30)		
10 (10:30 -12:30)	Building Information Management II	
Lunch (12:30 -13:30)		
11 (13:30- 15:00)	Panel Discussion 3: Digital by Design: A Roadmap for SA’s Built Environment	
Tea & coffee break (15:00 – 15:30)		
12 (15:30 - 17:30)	Building Information Management III	
Closing Function 17:30 - 18:00		

MONDAY 20/10/2025

Session 1 (8:30 -10:00): Conference Opening	
Conference Opening: <i>Sebastian Skatulla (University of Cape Town), Nashwan Dawood (Teesside University, UK)</i> Invited Welcome Message: <i>Pati Kgomo, CEO at MISA (Municipal Infrastructure Support Agent)</i>	
KEYNOTE LECTURES [Chair: Sebastian Skatulla]	
The Role of AI in Construction Ethics & Decision-Making, <i>Clinton Aigbavboa</i> Simulation-based Identification of Concealed Damage on Bridges, <i>Raimar Scherer</i>	
Tea & coffee break (10:00 – 10:30)	
Session 2 (10:30 – 12:30) [Chairs: Raimar Scherer (A), Clinton Aigbavboa (B)]	
Human-technology Frontier, Data Modeling & Computing (A)	Project Design, Construction, Planning, and Management (B)
The Technology Adoption Propensity of Professionals and Companies in the AEC Industry, <i>Christiaan Johannes Jurgens</i> An Exploratory Study of Decision-Making And Human Behaviour In Virtual Fire Evacuation, <i>Diran Yu, Abdul-Majeed Mahamadu, Weiwei Chen, Jiaxin Ling</i> The Role of Technological Innovation in Overcoming Barriers Faced by Women in the South African Built Environment, <i>Amanda Ndlovu</i> Wearable Technologies Adoption for Workers' Safety in the Nigerian Construction Industry: Analysis of Impediments, <i>David Ojimaajo Ebiloma, Peter Adekunle, Opeoluwa Akinradewo</i> Barriers to 4IR Technologies Adoption by SMEs in the South African Construction Industry: A Bibliometric Review, <i>Snehlanhla Precious Hlenqwa</i> Technology Adoption Propensity in the South African AEC Industry: Comparing the Gauteng and Western Cape Provinces, <i>Christiaan Johannes Jurgens</i> Integrating Digital Twins and Material Passports for Circular Built Environment Management, <i>Mathias Gustafsson</i>	BIM from Design to Production: Prerequisites for a Model-Based Construction Framework with Total BIM, <i>Mikael Viklund Tallgren, Efraim Ljung, Oliver Disney, Mikael Johansson, Mattias Roupé</i> A Systematic Review of Risk Maturity Model for Construction Digitalisation: Global Trends and Lessons for South Africa, <i>Mayowa Adedapo Ogunkbe, Clinton Aigbavboa, Ayodeji Emmanuel Oke, Matthew Ikuabe</i> Strategies Towards the Adoption of Construction Material Waste Management Practices, <i>Nwabisa Ntonqana, Olusegun Oguntola, Clinton Aigbavboa</i> Systemic and Operational Challenges to Construction Learnership Programme Implementation, <i>Andisiwe Dumako, Olusegun Oguntola, Clinton Aigbavboa</i> Stealth Workforce Management, <i>Aigbe Fortune, Clinton Aigbavboa</i> A Pilot Study of AI-Generated Bills of Quantities, <i>Wolfgang-Gunnar Adams</i> Assessment of Cybersecurity Threats to Construction Digitalisation in South Africa, <i>Keketso Shekeshe, Fikile Twala, Opeoluwa Akinradewo</i> Integrating Digital Twins and Material Passports for Circular Built Environment Management, <i>Toktam Tabrizi</i>
Lunch (12:30 -13:30)	
Session 3 (13:30 – 15:00): Panel Discussion 1: BIM Adoption in South Africa: Lessons Learned Internationally	
<i>Chair: Dr Amanda Filtane; Panellists: Prof Clinton Aigbavboa, Mr Rudd van Deventer, Prof Robin Drogemuller, Mr Fabio Companie</i>	
Tea & coffee break (15:00 – 15:30)	

Session 4 (15:30 – 17:30) [Chairs: Taiwo Afinowi (A), Mathias Gustafsson (B)]	
Built Environment Monitoring, Analysis and Design (Venue A)	Big data, Sensing, and Machine Learning (Venue B)
Architectural Design Optimization: Developing a Revit Add-In for Categorizing and Comparing Building Design Variants, <u>Daniel Napps</u>, <u>Dominik Lehmann</u>, <u>Markus König</u> Interaction Concept for Resource Evaluation: Visualizing LCA Results of an IFC Model in Unity using XR, <u>Lukas Guntermann</u>, <u>Leonie Zimmermann</u>, <u>Jonas Maibaum</u>, <u>Markus König</u> Towards the application of NeRFs and Gaussian Splitting for surface and textural representation in construction, <u>Eyob T Mengiste</u>, <u>Borja Garcia de Soto</u> The Benefits of Pre-Construction Modelling and Visualisation, <u>Koketso Modise</u>, <u>Astrid Kim van der Laan</u> Built Environment Monitoring, Analysis and Design: Categorizing Usage in Industrial Design and Sustainability, <u>Toktam Tabrizi</u> Integrating Plastic Waste Management into Net-Zero Building Materials: A Pathway to Climate Resilience, <u>Laura Festus Amalu</u>, <u>Clinton Aigbavboa</u>, <u>Opeoluwa Akinradewo</u>, <u>Seyi Stephen</u>	Bridging the Safety Gap: Feasibility of Using Large Language Models for Hazard Detection in Robotic-Aided Construction Site Monitoring, <u>Ronny Helbing</u>, <u>Nasim Babazadeh</u>, <u>Jürgen Melzner</u> AI-Driven Data Extraction from Bridge Engineering Documents, <u>Wiederer Jonas</u>, <u>Mehringer</u>, <u>Anna-Maria</u>, <u>Hoeng</u>, <u>Simon</u>, <u>Obergrießer</u>, <u>Mathias</u>, <u>Schubert</u>, <u>Adrian</u>, <u>Kraus</u>, <u>Michael</u> A Mutli-Agent AI System for Roof Design, <u>Nawari O. Nawari</u>, <u>Oluwatoyin Lawal</u> Early Stage Building Embodied Emissions Predication Using Hierarchical Heterogeneous Graph Neural Networks, <u>Yusong Zhu</u>, <u>Yiming Xiang</u>, <u>Yanhua Wu</u>, <u>Stergios-Aristoteles Mitoulis</u>

TUESDAY 21/10/2025

Session 5 (8:30 -10:00): KEYNOTE LECTURES [Chair: Nashwan Dawood]	
The Role of Technological Innovation in Achieving Net-Zero and Sustainability in Construction Projects, <u>Kathy Michell</u> Data Spaces for Supporting Circularity in the Construction Industry, <u>Marcus König</u> Digital Twin, Robotics, AI and Blockchain for Carbon and ESG Management, <u>Jack C. P. Cheng</u>	
Tea & coffee break (10:00 – 10:30)	
Session 6 (10:30 – 12:30) [Chairs: Kathy Michell (A), Jack C. P. Cheng (B)]	
Building Information Management I (Venue A)	Joint session: Robotics / Urban Engineering (Venue B)
Challenges and Opportunities for Emerging Technologies in Construction Safety Risk Assessment Methods, <u>Jochen Teizer</u> Efficient Calculation of Quantities from 3D Geometry in IFC Models, <u>Mikael Johansson</u>, <u>Mattias Roupé</u> Proposal for a Method of using Gaussian Splatting in Rebar Inspection, <u>Yorikazu Kobayashi</u>, <u>Satoshi Kubota</u>, <u>Yoshihiro Yasumuro</u> Optimising Construction Material Quantification in South Africa through BIM Integration, <u>Shannon Govender</u>, <u>Calayde Davey</u>, <u>Taiwo Afinowi</u> A concept of a IT Infrastructure for Construction Product Traceability, <u>Mohannad Esmail</u>, <u>Andree Berg</u>, <u>Agnes Kelm</u>, <u>Anica Meins-Becker</u> Blockchain-Integrated BIM Framework for Trustworthy Material Passports in Construction, <u>Oluwatoyin Lawal</u>, <u>Nawari O. Nawari</u>, <u>Adel Alsaffar</u> An In-Depth Computational Design Methodology for Rapid Bridge Modelling, <u>Astrid Kim van der Laan</u> Digital Design, Additive Manufacturing, and Robotic Assembly in a Small-scale Construction Learning Factory, <u>Casper A. Jensen</u>, <u>Jochen Teizer</u>	Walking Robot for Advancing Construction Logistics On-Site, <u>Sebastian Hollermann</u>, <u>Katharina Teuber</u> Autonomous Debris Collection in Indoor Construction Sites: A Feasibility Study Using an Arm-Based Autonomous Mobile Robot (AMR) Platform, <u>Ivan Mutis</u> Human-In-The-Loop in Construction Projects: a Human-Centric Assessment, <u>Mahsa Mirboland</u>, <u>Christian Koch</u> Workforce Displacement or Upskilling? A Bibliometric Analysis of Human Capital Challenges in 4IR Construction Projects, <u>Womotimi Ekubo</u> Rheological characterization of SBS-modified Bitumen for High- Performance Asphalt Applications, <u>Erik Kamratowsky</u>, <u>Josef Keller</u>, <u>Sabine Leischner</u>, <u>Alexander Zeißler</u> Decarbonising Transport Systems: The Role of AI, IoT, and Emerging Digital Technologies, <u>Manjusha Muraleedharan</u>, <u>Raghad Alshalabi</u>, <u>Imene Soussi</u>, <u>Nashwan Dawood</u> Smart Solutions for Sustainable Urban Transport: Toward Resilient and Intelligent City Systems, <u>Olaoluwa Akinshipe</u>, <u>Opeoluwa Akinradewo</u>, <u>Clinton Aigbavboa</u>
Lunch (12:30 -13:30)	

Session 7 (13:30 – 15:00): Panel Discussion 2: Bridging Digital Gaps for a Net-Zero Future

Chair: Prof Nashwaan Dawood; Panellists: Prof Jack Cheng, Dr Liza Cirolia, Mr Richard Matchett, Mr Robert Gryns

Tea & coffee break (15:00 – 15:30)

Session 8 (15:30 – 17:00) [Chairs: Wolfgang-Gunnar Adams (A), Opeoluwa Akinradewo (B)]

Asset and Facility Management, Operation, and Maintenance (Venue A)

BIM-based Structural Safety Checks in Virtual Reality for Reinforced Concrete Structures, Gustavo Cosenza, Fulya Tasliarmut, Christian Koch

Computer-Aided Condition Prediction of Asphalt Layers for an Asset Management System Using Axle Load And Temperature Measurement Values, Uwe Reinhardt, Wolf Uhlig, Alexander Buttgerit, Alexander Zeissler

Visualization of Heat Risk through Solar Radiation Estimation and Skylight Reproduction Based on Public Meteorological Information, Ryoya Shibata, Taira Ozaki, Satoshi Kubota, Yoshihiro Yasumuro

Challenges in Implementing Technological Solutions for the Operations and Maintenance of Public Hospital Infrastructure in South Africa, Mbongiseni Gcaba, Nishani Harinarain

Technological Diffusion: A challenge in the Operations and Maintenance of Public Hospitals in South Africa, Mbongiseni Gcaba, Nishani Harinarain

Design Optimisation for Reducing Embodied Emissions in Precast Projects: Considering Micro-level Design Decisions, Yiming Xiang

Joint session: Reality Capture Technologies / Technology-enriched Engineering Pedagogy (Venue B)

Proposal of a Damage Detection Method Using Point Cloud Data for Historically Valuable Bridge, Yuki Yokota, Kotaro Sasai, Kiyoyuki Kaito, Kiyoshi Kobayashi

Automated Room-Level Labelling of 360 Degree Video Frames Using SLAM, Samuel A. Prieto, Eyob T. Mengiste, Mohamed Benaich, Borja García de Soto

Immersive VR Training for Reinforcement Inspection and Multi-User Interaction in a CAVE Environment, Loreen Zeisberg, Sebastian Hollermann

Bridging the Industry-Academia Gap: A Conceptual Pedagogical Framework for Collaborative Digital Transformation in African Construction Practices, Seyi Stephen, Clinton Aigbavboa, Gloria Akanyawie

Virtual Reality in South African Pedagogy: A Focus on Architecture, Hyacinthe Tonga

Integrating the TPACK Framework to Address Challenges in South African Built Environment Education: Scoping Review, Motheo Tjebane, Nosipho Buhle Faya



WEDNESDAY 22/10/2025

Session 9 (9:00 -10:00): KEYNOTE LECTURES [Chair: Aso Haji Rasouli]
Goldilocks and BIM – Picking the Right Porridge for You, <i>Rudd van Deventer</i> Qatar-BIM project. Development of a Whole Life Cycle Information Flow Approach enabled by Building Information Modelling (BIM) Protocols and Technologies for Qatar Construction Industry, <i>Nashwan Dawood</i>
Tea & coffee break (10:00 – 10:30)
Session 10 (10:30 – 12:30): Building Information Management II [Chair: Rudd van Deventer]
GIS-Integrated Simulation of Logistics Processes for the Reuse of Structural Concrete Elements, <i>Nina Krautgartner, Philipp Hagedorn, Markus Thewes, Markus König</i> Optimal BIM Level of Development and Information Maturity for Evaluating the Deconstruction and Reuse Potential of Post-End-of-Life Buildings: A Case Study of Two Heritage Greenhouses, <i>Calayde Davey, Stefan Mollema, Taiwo Afinowi, Johann Van der Merwe, Helene Potgieter</i> Towards a Digital Building Product Passport for Timber Components: Process Modeling of the CLT Value Chain, <i>Ann-Kathrin Ibach, Lukas Loeb, Agnes Kelm, Anica Meins-Becker, Jakob Deich, André Pomp</i> Digital Verification of Construction Product Declarations: A Web-Based Approach for Compliance Checking, <i>Leonie Zimmermann, Sven Zentgraf, Markus König</i> Automated AI-Generated Pattern Image to BIM Facade Component, <i>Hayoon Kim, Youngjin Yoo, Jin-Kook Lee</i> Maintenance and Management System for Buddhist Temple Cemeteries in Japan, <i>Jo Suzuki, Yasuhiro Ueki, Satoshi Kubota, Yoshihiro Yasumuro</i> VSGen: A RAG-Based AI Framework for Sustainable Interior Design Using 360° Spatial Image, <i>Youngchae Kim, Jin-Kook Lee</i>
Lunch (12:30 -13:30)
Session 11 (13:30 – 15:00): Panel Discussion 3: Digital by Design: A Roadmap for South Africa’s Built Environment
<i>Chair: Dr Aso Haji Rasouli; Panellists: Prof Markus König, Prof Raimar Scherer, Mr Kobus van der Merwe, Mr Andrew Gruting</i>
Tea & coffee break (15:00 – 15:30)
Session 12 (15:30 – 17:30): Building Information Management III [Chair: Nashwaan Dawood]
Integrating External Documentation in BIM through a Git-Based CDE: The Vasari Corridor Case Study, <i>Andrea Bongini, Carlo Biagini</i> Unlocking Knowledge through Grey Literature: Technology-Enabled Asset Management in Construction, <i>Alhadi Alsaffar, Prof. Thomas H. Beach, Prof. Yacine Rezgui</i> The Role of Digital technologies in Enhancing Construction Safety A Case Study of the George Building Collapse, <i>Taelo Molabe</i> Validating Maintenance Documentation Factors for Digital Twin Maintenance Management of Healthcare Facilities, <i>David Ojimaajo Ebiloma, Clinton Aigbavboa</i> Optimizing Change Management Strategies in Highway Construction Projects through AI-enabled Digital Twins: A Conceptual Implementation Framework for Public- Private Partnership Projects, <i>Demiss B. Asteray, Walied A. Elsaigh</i> Development of the Spatial Property-based Visualization Approach based on a Demonstration of Interior Finish Mapping Automation, <i>Taesik Nam, Sumin Chae, Jin-Kook Lee</i> The Future of Dams: a Review of the Impacts of Climate Change, <i>Tsepang Mohajane</i>
Closing