

Program for the 2nd 4TU/14USA Research Day on Digitalization of the Built Environment

Eindhoven University of Technology Campus, De Zwarte Doos Theater Room - Monday, 27th of March 2023, 9:30 – 18:30

Time	Subject	Content
09:30 – 10:00	Walk-in & Registration	Coffee/tea and registration
10:00 – 10:15	Opening	Welcome address by Prof. Bauke de Vries, Dr. Ekaterina Petrova and Dr. Pieter Pauwels, TU/e
10:15 – 11:15	Demo Session	Demonstration of software and tools Chair: Roel Loonen, TU/e <ol style="list-style-type: none"> 1. Circularity assessment in a BIM environment. <i>Li Jiang, UTwente</i> 2. Prototype for enhancing stakeholder participation using real-time data and 3D engines. <i>Rodrigo Morales, UTwente</i> 3. ROTUNDORO: Web-based decision support tool for housing renovations. <i>Julia Kaltenegger, TU/e</i> 4. Design automation software for reused concrete buildings. <i>Fred Mudge, TU/e</i> 5. Urban Nature Recommender. <i>Shahryar Sarabi, UU</i> 6. The 3DCityDB-Tools plugin for QGIS. <i>Giorgio Agugiaro, TUD</i>
11:15 – 11:45	Coffee/tea break	
11:45 – 13:15	Presentation Session I	Smart digital infrastructure Chair: Ekaterina Petrova, TU/e <ol style="list-style-type: none"> 1. Developing an Infrastructure Lifecycle Digital Twin; A semantic modelling approach. <i>Inga Maria Giorgadze, UTwente</i> 2. Excavation Damage Prediction by Machine Learning Approach. <i>Jiarong Li, Léon Olde Scholtenhuis, Erwin Folmer and Andre Dorée, UTwente</i> 3. Coupling road construction process quality indicators with product quality indicators. <i>Qinshuo Shen, UTwente</i> 4. Demystifying the Urban Heat Island Phenomenon: Through High Resolution Temporal and Spatial Urban Data and Machine Learning. <i>Monica Pena Acosta, UTwente</i>

		<ol style="list-style-type: none"> 5. Findings in the calculation of solar irradiance in urban areas using several GIS tools. <i>Camilo Leon-Sanchez, Giorgio Agugiaro and Jantien Stoter, TUD</i> 6. Integrating Image Classification and Morphological Processing to Detect 3D Underground Utility Lines. <i>Nima Zarrinpanjeh, Léon Olde Scholtenhuis, Mila Koeva, André Dorée and Mechiel van Manen, UTwente</i> 7. Formula Inholland. <i>Ramon Vlaar and Joost Weijers, Inholland</i>
13:15 – 14:30	Lunch and TU/e campus walk	
14:30 – 16:00	Presentation Session II	<p>Data-driven buildings and urban transformation Chair: Léon Olde Scholtenhuis, UTwente</p> <ol style="list-style-type: none"> 1. The use of artificial intelligence to determine neighborhood typologies for the Netherlands. <i>Lisanne Corpel, Laura Kleerekoper, Stephanie Erwin, Jeroen Kluck, Pieter Bons and Zerín Arif, AUAS</i> 2. Generating metadata schema for data-driven smart buildings. <i>Lasitha Chamari, Ekaterina Petrova and Pieter Pauwels, TU/e</i> 3. Multi-class semantic segmentation of digital surface models for solar energy applications. <i>Bowen Tian, Roel Loonen and Jan Hensen, TU/e</i> 4. Unraveling the costs of improving indoor comfort using semantic digital twins. <i>Alex Donkers, Dujuan Yang, Bauke De Vries and Nico Baken, TU/e</i> 5. Track & Trace: closing the energy performance gap through real-time performance tracking of buildings. <i>Twan Rovers, Annemarie Weersink and Christian Struck, Saxion</i> 6. On-site Robotic Construction with Material Uncertainties. <i>Maikel Brinkhoff, TU/e</i> 7. Exploratory study for deployment of digital twins for circular energy, heat and building materials in new development of Greenport Horti Campus Westland. <i>Atasi Bhattacharjee and Rizal Sebastian, THUAS</i>
16:00 – 16:30	Coffee/tea break	
16:30 – 17:15	Panel Discussion	<p>The future digital built environment: research and education perspectives Chair: Dr. Pieter Pauwels (TU/e) Panel members: Atasi Bhattacharjee (THUAS), Dr. Hans Voordijk (UTwente), Perica Savanovic (Inholland), Olivia Guerra-Santin (TU/e)</p>
17:15 – 17:30	Closing	Summary and way forward by Dr. Ekaterina Petrova and Dr. Pieter Pauwels (TU/e)
17:30 – 18:30	Networking and drinks	

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