EC ICE 2019

Workshop on Intelligent Computing in Engineering

26th International Workshop on Intelligent Computing in Engineering

Leuven, Belgium, June 30 to July 3, 2019.

Edited by

Philipp Geyer *
Karen Allacker *
Mattias Schevenels *
Frank De Troyer *
Pieter Pauwels **

* KU Leuven, Faculty of Engineering Science,Belgium
** Ghent University, Faculty of Engineering and Architecture, Belgium

Table of Contents

- Parametric Virtual Design-Based Multi-Objective Optimization for Sustainable Building Design
  Cunyi Cheng, Jelena Ninic, Walid Tizani
- Realistic Structural Stabilization based on Spatial Zoning
  Sjonnie Boonstra, Dennis Claessens, Hèrm Hofmeyer, Bauke de Vries

Session 4: BIM and Engineering Ontologies I

- Integrating Railway Subdomain-Specific Data Standards into a Common IFC-based Data Model
  Sebastian Esser, André Borrmann
- A Semantic Model of Intelligent Transportation Systems
  Mahsa Mirboland, Kay Smarsly
- State of the Art in Damage Information Modeling for Bridges
  Mathias Artus, Christian Koch
- Parametric Design and Isogeometric Analysis of Tunnel Linings within the Building Information Modelling Framework
  Jelena Ninic, Hoang-Giang Bui, Guenther Meschke

Session 5: BIM and Engineering Ontologies II

- Educational Facility Design with Graph Grammar Systems
  Ewa Grabska, Barbara Strug, Grażyna Ślusarczyk
- Conformance Checking of IFC Models via Semantic BIM Reasoner
  Muhammad Fahad, Nicolas Bus
- Distributed Manufacturer Services to Provide Product Data on the Web
  André Hoffmann, Anna Wagner, Tim Huyeng, Meiling Shi, Julian Wengzinek, Wendelin Sprenger, Christoph Maurer, Uwe Rüppel

Session 6: Monitoring and control algorithms in engineering I

- An Automated Approach for Point Cloud Alignment based on Density Histograms
  Jan Martens, Jörg Blankenbach
- A Framework of Multi-user Voice-driven BIM-based Navigation System for Fire Emergency Response
  Hui Zhou, Mun On Wong, Huaquan Ying, Sanghoon Lee
- Model-based Interpretation of Floor Vibrations for Indoor Occupant Tracking
  Slah Drira, Yves Reuland, Ian Smith
- Knowledge-Based Target Selection in a Building Navigation System
  Wojciech Palacz
- Adaptive Feature-Conserving Compression for Large Scale Point Clouds
  Felix Eickeler, André Borrmann

Session 7: Monitoring and control algorithms in engineering II

- Metamodeling Wireless Communication in Cyber-Physical Systems
  Kay Smarsly, Theresa Fitz, Dmitrii Legatiuk
- System-Based Resilience Assessment of Networked Transportation Systems in Metropolitan Areas: Case of Greater Los Angeles
  Eyuphan Koc, Barbaros Cetiner, Ellen Jisu Lee, Lucio Soibelman, Ertugrul Taciroglu, Anya Nutakki

- Knowledge-based Registration for Reliable Correlated Change Detection on High-pier Curved Continuous Rigid Frame Bridge
  Zhe Sun, Ying Shi, Wen Xiong, Pingbo Tang
- Fault-Tolerant Variable Speed Limit Control for Freeway Work Zone
  Shuming Du, Saiedeh Razavi

Session 8: Advanced computing in engineering

- Towards Registration of Construction Drawings to Building Information Models using Knowledge-based Extended Geometric Hashing
  Maciej Trzeciak, André Borrmann
- Input Feature Optimization for ANN Models Predicting Daylight in Buildings
  Clara-Larissa Lorenz, Spaeth, Bleil De Souza, Packianather
- Combining Airborne Images and Open Data to Retrieve Knowledge of Construction Sites
  Katrin Jahr, Dorota Iwaszczuk, André Borrmann

Session 9: Computer supported construction management

- Convolutional Long Short-Term Memory Model for Recognizing Postures from Wearable Sensor
  Junqi Zhao, Esther Obonyo
- Skills Assessment for Robotics in Construction Education
  Fopefoluwa Bademosi, Ralph Tayeh, Raja R. A. Issa
- 4D Simulation Considering Adjusted Schedules for Safety Planning in Hydroelectric Projects
  Michel Guevremont, Amin Hammad