

Wednesday, June 28, 2017

Registration Open

09:30-15:00 @ 1F, E2 Building

16:00-18:00 @ 1F, International Building (IB)

<Room 102, E2 Building>

10:00-10:05

Technical Workshop Opening Remark

10:05-11:05

Technical Workshop 1

Chair: Jui-Sheng Chou

Smart Reverse Engineering and Hybrid Reality Technology for Industrial Facility

Prof. Soonwook Kwon, Sungkyunkwan University

11:05-12:05

Technical Workshop 2

Chair: Jui-Sheng Chou

Industry 4.0 for Construction

Prof. Shuo-Yan Chou, National Taiwan University of Science and Technology

12:05-14:00 LUNCH

14:00-15:00

Technical Workshop 3

Chair: Jui-Sheng Chou

Location Based Site Safety Management

Prof. Heng Li, Hong Kong Polytechnic University

15:00-16:00

Technical Workshop 4

Chair: Jui-Sheng Chou

Machine Learning Applications in Civil Engineering

Prof. Benny Raphael, IIT Madras

17:30-20:00

Exhibition Space – Area B

Welcome Reception

Thursday, June 29, 2017

Registration Open

08:30-17:00 @ 1F, International Building (IB)

<Room 101, IB>

09:00:09:30

Opening Remark

09:30-10:10

Keynote Session 1

Chair: Min-Yuan Cheng

New Technology Opportunities for Construction: The Case of 3D Printing

Mirosław Skibniewski, University of Maryland

10:10-10:50

Keynote Session 2

Chair: Min-Yuan Cheng

System Thinking and Initiatives towards Resilient Urbanization

Dongping Fang, Tsinghua University

10:50-11:10 COFFEE BREAK & POSTER VIEWING

Oral Session >> next page

Thursday, June 29, 2017

<Room 101, IB>

11:10-12:30

Symposium A-1: BIM & Computational Intelligence

Chair: Alessandro Carbonari

- 11:10 A-1-1
While loop Algorithm to Enhance the Efficiency of Work Sampling Method in Performance Measurement
Hassan Farooq, Payam Rahnamayiezekavat and Sungkon Moon
- 11:25 A-1-2
Employing Outlier and Novelty Detection for Checking the Integrity of BIM to IFC Entity
Bonsang Koo, Byungjin Shin and Thomas F. Krijnen
- 11:40 A-1-3
Decision Support Tool for Multi-Criteria Analyses of the Quality of Large Building Stock
Alberto Giretti, Alessandro Carbonari, Alessandra Corneli, Valentina Villa and Giuseppe Di Giuda
- 11:55 A-1-4
Safety Regulation Classification System to support BIM based Safety Management
Rahat Hussain, Do Yeop Lee, Hai Chien Pham and Chan Sik Park
- 12:10 A-1-5
Automated Clash Resolution of Steel Rebar in RC Beam- Column Joints using BIM and GA
Mohit Mangal, Jack C.P. Cheng and Qian Wang

<Room 201, IB>

11:10-12:30

Symposium B-1: Construction Robotics (I) / Fabrication

Chair: Carl Haas

- 11:10 B-1-1
Dimensional variability analysis of construction assemblies using kinematics chains and building information models
Mohammad Nahangi, Christopher Rausch, Carl Haas and Jeffrey West
- 11:25 B-1-2
Development of a BIM-Based Integrated Model for Cad-To-Cam Production Automation
Xiaoxi Li, Ahmed Qureshi and Mohamed Al-Hussein
- 11:40 B-1-3
Towards cloud informed robotics
Sven Stumm, Sigrid Brell-Cokcan and Peter Neu
- 11:55 B-1-4
First monitoring and analysis of the manufacturing and installation process of timber based 2D modules for accomplishing a future robotic building envelope upgrading
Kepa Iturralde, Thomas Linner and Thomas Bock
- 12:10 B-1-5
Bottom-up Cognitive Analysis of Bionic Inspection Robot for Construction Site
Thomas Bock, Alexey Bulgakov, Sergei Emeliannov and Daher Sayfeddine

<Room 202, IB>

11:10-12:30

Symposium C-1: Sensing & Monitoring

Chair: Shabtai Isaac

- 11:10 C-1-1
Developing a Low Cost Capacitive ECG via Arduino and Single-Board Computer Interfaced with Capacitive Electrodes for Prevention and Security Aspects
Jörg Güttler and Thomas Bock
- 11:25 C-1-3
Evaluation of Crane Operators' Performance and Situation Awareness during Lifting Operations
Yihai Fang and Yong Cho
- 11:40 C-1-4
A High-Resolution Intelligence Implementation based on Design-to-Robotic-Production and -Operation strategies
Alexander Liu Cheng, Henriette Bier, Galoget Latorre, Benjamin Kemper and Daniel Fischer
- 11:55 C-1-5
Flexible management for concrete curing at low temperature based on learning from cases
Karol Andrzejczak, Andrzej Karlowski and Jerzy Paslawski
- 12:10 C-1-2
Improving Indoor Location Tracking Quality for Construction and Facility Management
Matthias Neges, Mario Wolf, Markus Propach, Jochen Teizer and Michael Abramovici

<Room 301, IB>

11:10-12:30

Symposium D-1: Interoperability

Chair: Fabiano Correa

- 11:10 D-1-1
Linked Data System for Sharing Construction Safety Information
Akeem Pedro, Do Yeop Lee, Chan Sik Park and Rahat Hussain
- 11:25 D-1-2
FEA in Road Engineering Applications?
Filip Fedorik, Tomi Makkonen and Rauno Heikkilä
- 11:40 D-1-3
Integration of Structural Health Control in BIM for Current and Future Residential Buildings
Filip Fedorik, Rauno Heikkilä, Tomi Makkonen and Antti Haapala
- 11:55 D-1-4
IFC-based cut & bent rebar supply chain integration
Alex Maciel and Fabiano Correa
- 12:10 D-1-5
Classification of objects and their properties defined in Korea Building Act to translate into KBimCode and their application
Jinsung Kim, Jin-Kook Lee, Jaeyoung Shin and Hayan Kim

<Room 302, IB>

11:10-12:30

Symposium E-1: Virtual Reality / Augmented Reality

Chair: Soon-Wook Kwon

- 11:10 E-1-1
Mobile Point Cloud Assessment for Trench Safety Audits
Jochen Teizer, Adam M. Gerson, Thomas Hilfert, Manuel Perschewski and Markus König
- 11:25 E-1-2
Augmented Reality (AR) based approach to achieve an optimal site layout in construction
Abhishek Raj Singh, Vinayak Suthar and Venkata Santosh Kumar Delhi
- 11:40 E-1-3
Assessing the Effectiveness of Augmented Reality on the Spatial Skills of Postsecondary Construction Management Students in the U.S.
Jeff Kim and Javier Irizarry
- 11:55 E-1-4
AR(Augmented Reality) based 3D Workspace Modeling for Quality Assessment Using As-Built On-Site Condition in Remodeling Construction Project
Song Yi Lee, Soon-Wook Kwon and Tae Kyu Ko
- 12:10 E-1-5
A study on the effect of the use of Augmented Realty on students' quantity take-off
Sung Joon Suk, George Ford, Youngcheol Kang and Yong Han Ahn

12:30-13:40 LUNCH

<Room 101, IB>

13:45-15:25

Symposium A-2: BIM & Facility Management

Chair: Chung-Wei Feng

- 13:45 A-2-1
Location-based Facility Management System Framework Using 3D-BIM on Commercial Office Buildings
Jonghan Yoon and Heesung Cha
- 14:00 A-2-2
A Study of the Campus Facilities Maintenance System with Building Information Modeling Application
Lee-Kuo Lin, Yen-Yu Hu and Si-Yu Chen
- 14:15 A-2-3
IFC of BIM Automatic Retrieving and Linking for Building Envelope Energy Efficiency Measuring - Ministry of the Interior Green Building Electronic Evaluation System in Taiwan
Kuochung Wen and Wunbin Siao
- 14:30 A-2-4
Modular vs Conventional Construction: A Multi-Criteria Framework Approach
Ahmed Hammad and Ali Akbarnezhad
- 14:45 A-2-5
Utilizing Building Information Modeling and Radio Frequency Identification in Recording and Preserving Historic Buildings
Kemo Sima and Tsung-Juang Wang
- 15:00 A-2-6
Constructing a MEP BIM Model For Different Maintenance Scenarios—A Case Study of Air Conditioning
Po Cheng Wu and Chung Wei Feng

<Room 201, IB>

13:45-15:25

Symposium B-2: Construction Robotics (II) / 3D Printing

Chair: Jerzy Paslawski

- 13:45 B-2-1
Effect of Delay Time on the Mechanical Properties of Extrusion-Based 3D Printed Concrete
Taylor Marchment, Ming Xia, Elise Dodd, Jay Sanjayan and Behzad Nematollahi
- 14:00 B-2-2
Applications of Additive Manufacturing in the Construction Industry – A Prospective Review
Daniel Delgado Camacho, Patricia Clayton, William O'Brien, Raissa Ferron, Maria Juenger, Salvatore Salamone and Carolyn Seepersad
- 14:15 B-2-3
Autonomous Big-Scale Additive Manufacturing Using Cable-Driven Robots
Ilija Vukorep
- 14:30 B-2-4
Current Progress of 3D Concrete Printing Technologies
Behzad Nematollahi, Ming Xia and Jay Sanjayan
- 14:45 B-2-5
Optimisation of Different Concrete Mix Designs for 3D Printing by Utilizing Six Degrees of Freedom Industrial Robot
Pshtiwan Shakor, Jarred Renneberg, Shami Nejadi and Gavin Paul
- 15:00 B-2-6
Automation of robotic concrete printing using feedback control system
Biranchi Panda, Jian Hui Lim, Nisar Ahamed Noor Mohamed, Suvash Chandra Paul, Yi Wei Daniel Tay and Ming Jen Tan

<Room 202, IB>

13:45-15:25

Symposium C-2: Machine Learning / Computational Intelligence

Chair: Changwan Kim

- 13:45 C-2-4
Decision Support System for Modular Construction Scheduling
Ahmed Hammad, Ali Akbarnezhad, David Rey and Hanna Grzybowska
- 14:00 C-2-1
Comparison of Single Classifier Models for Predicting Long-term Business Failure of Construction Companies Using Finance-based Definition of the Failure
Hyunchul Choi, Hyojoo Son, Changwan Kim, Hyeonwoo Seong, Hyukman Cho and Sungwook Lee
- 14:15 C-2-2
Vision-Based Safety Vest Detection in a Construction Scene
Hyeonwoo Seong, Hyojoo Son, Changwan Kim, Hyunchul Choi, Hyukman Cho and Sungwook Lee
- 14:30 C-2-3
Mass Estimation of On-road Construction Equipment Based on Operational Parameters
Khalegh Barati and Xuesong Shen
- 14:45 C-2-5
Multilevel Computational Model for Cost and Carbon Optimisation of Reinforced Concrete Floor Systems
Stathis Eleftheriadis, Philippe Duffour, Paul Greening, Jess James and Dejan Mumovic

<Room 301, IB>

13:45-15:25

Symposium D-2: Project Management

Chair: Jieh-Haur Chen

- 13:45 D-2-2
Evaluating modularisation tools in construction
Tanawan Wee, Marco Aurisicchio and Ireneusz Starzyk
- 14:00 D-2-3
Integration of RFID, Web-Based, and Artificial Intelligence Techniques in Facilities Management
Chien-Ho Ko
- 14:15 D-2-4
Performance assessment of residential buildings management utilizing network data envelopment analysis
Wei Tong Chen, Pei-San Tan, Nida Fauzia and Chao Wei Wang
- 14:30 D-2-5
Condition-Based Building Maintenance Strategy Selection Using Constraint Programming
Shu-Shun Liu and Gilang Ramadhan
- 14:45 D-2-6
A study of BIM based building facilities online repair system
Nai-Hsin Pan

<Room 302, IB>

13:45-15:25

Symposium E-2: Visualization

Chair: Samad Sepasgozar

- 13:45 E-2-1
A Framework for Using Advanced Visualization Tools for Residential Property Management
Mehrfarin Takin, Jinghan Peng, Samad Sepasgozar and Hamidreza Ebrahimi
- 14:00 E-2-2
Displaying Earthquake Events in Serious Game Platforms Using Semantic Rules and Fragility
Chang-Yuan Liu and Chien-Cheng Chou
- 14:15 E-2-3
Developing a BIM-based Visualization and Interactive System for Healthcare Design
Chao-Yung Huang, Huey-Wen Yien, Yen-Pei Chen, Yu-Chih Su and Yu-Cheng Lin
- 14:30 E-2-4
Automated Ergonomic Risk Assessment based on 3D Visualization
Xinming Li, Sanghyeok Han, Mustafa Gul and Mohamed Al-Hussein
- 14:45 E-2-5
A Visualization System for Improving Managerial Capacity of Construction Site
Ye Han, Yuichi Yashiro and Fumio Hatori
- 15:00 E-2-6
Immersive Virtual Environment (IVE) as a potential tool for interior colour study in office environments
Shaojie Zhang, Jeonghwan Kim, Shan-Ying Shih, Choongwan Koo and Seung Hyun Cha

15:25-15:45 COFFEE BREAK & POSTER VIEWING

<Room 101, IB>

15:45-17:25

Symposium A-3: BIM & Visualization

Chair: Mohamed Al-Hussein

- 15:45 A-3-1
A Study of Developing the Fire Investigation System with Building Information Modeling Application
Lee-Kuo Lin, Yu-Huai Hsu and Sung-Wei Hung
- 16:00 A-3-2
Flexible Earthwork BIM Module Framework for Road Project
Hassnain Raza, Waqas Tanoli, Seungsoo Lee and Jongwon Seo
- 16:15 A-3-3
The Implementation of Civil Information Modeling for Constructability Review in Highway
Yick Hong Liao and Yu-Cheng Lin
- 16:30 A-3-4
Visual Language-based approach for the Definition of Building Permit related rules
Hayan Kim, Jin-Kook Lee, Jaeyoung Shin and Jinsung Kim
- 16:45 A-3-5
Study on BIM Family Self-create for Steel Reinforcing Bar Detail Construction Design and Information Extraction
Li-Chuan Lien, Pan-Cheng Zhang, S.B Chen, Z.C. Liao and Y.N. Liu
- 17:00 A-3-6
Automating the Generation of Indoor Space Topology for 3D Route Planning Using BIM and 3D-GIS Techniques
Will Y. Lin, Pao H. Lin and H. Ping Tserng

<Room 201, IB>

15:45-17:25

Symposium B-3: Construction Robotics (III) / Control & Mechanisms

Chair: Chien-Ho Ko

- 15:45 B-3-1
Velocity Control Mechanism of the Underactuated Hammering Robot for Gravity
Yusuke Takahashi, Satoru Nakamura, Yasuichi Ogawa and Tomoya Satoh
- 16:00 B-3-2
Development of UAV Indoor Flight Technology for Building Equipment Works
Hiroyuki Tomita, Takuya Takabatake, Shintaro Sakamoto, Hitoshi Arisumi, Shin Kato and Yuji
- 16:15 B-3-3
Force-regulated impact control of a reinforced concrete box culvert chipping robot
Jaeuk Cho and Seungyeol Lee
- 16:30 B-3-4
A method based on C-K Theory for fast STCR development: The case of a drilling robot design
Thomas Zedin, François Guéna, Olivier Marchand and Louis Vitalis
- 16:45 B-3-5
A Study on the Modeling of Independently Driven Quadraped Crawler System for Posture Control of Special Purpose Machine for Disaster Response
Sang Keun Lee, Ji Woo Ha, Sang Ho Kim, Yong Seok Lee, Dong Ik Sun and Chang Soo Han

<Room 202, IB>

15:45-17:25

Symposium C-3: Computer Vision

Chair: Po-Han Chen

- 15:45 C-3-1
Deeper Networks for Pavement Crack Detection
Leo Pauly, Shan Luo, David Hogg, Raul Fuentes and Harriet Peel
- 16:00 C-3-2
A Study on Pre-processing Methodology of Image Compensation using Histogram Equalization for Generating Point-cloud of Construction Environment
Daeyoon Moon, Soon-Wook Kwon, Suwan Chung, Song Yi Lee and Tae Kyu Ko
- 16:15 C-3-3
Thermal 3D modelling
Gregory Clarkson, Shan Luo and Raul Fuentes
- 16:30 C-3-4
Detection of Nearby Obstacles with Monocular Vision for Earthmoving Operations
Hyojoo Son, Hyunwoo Sung, Hyunchul Choi, Sungwook Lee and Changwan Kim
- 16:45 C-3-5
Development of Smartphone Application for Real-Time Steel Rust Recognition
Wei-Tsun Liu, Bo-Sheng Bai and Po-Han Chen
- 17:00 C-3-6
Evaluating the Performance of Convolutional Neural Network for Classifying Equipment on Construction Sites
Mohammad Soltani, Seyedeh-Forough Karandish, Walid Ahmed, Zhenhua Zhu and Amin

<Room 301, IB>

15:45-17:25

Symposium D-3: Project Management

Chair: Ilija Vukorep

- 15:45 D-3-1
A Risk-based Critical Path Scheduling Method (I) : Model and Prototype Application System
Hsien-Kuan Chang, Wen-Der Yu and Shao-Tsai Cheng
- 16:00 D-3-2
A Risk-based Critical Path Scheduling Method (II) : A Visual Approach System using BIM
Hsien-Kuan Chang, Wen-Der Yu and Shao Tsai Cheng
- 16:15 D-3-3
Value Engineering Decision Making Model Using SMART
Ahmed Montaser and Ali Montaser
- 16:30 D-3-4
An Empirical Study on Analyzing Schedule Delays of Construction Project in Indonesia
Zetta Rasullia Kamandang, Jyh-Bin Yang and Indradi Wijatmiko
- 16:45 D-3-5
An Analysis Using Game Theory on the Investment Incentive of PPP Projects
Shiau-Jing Ho, Sheng-Lung Lin and Hui-Ping Tserng
- 17:00 D-3-6
Building Carbon Footprint(BCF) Evaluation for Social Amenities and Education Center in Taipei
Ying Chiao Chiu and Po Han Chen

<Room 302, IB>

15:45-17:25

Symposium E-3: Construction Robotics (IV) / Design

Chair: Seung Hyun Cha

- 15:45 E-3-1
Kite-Powered Design-to-Robotic-Production for Affordable Building on Demand
Henriette Bier, Roland Schmehl, Sina Mostafavi, Ana Anton and Serban Bodea
- 16:00 E-3-2
Derivation of Technology Element for Automation in Table Formwork in a Tall Building Construction
Junhuck Lee, Dongmin Lee, Hunhee Cho and Kyung-In Kang
- 16:15 E-3-3
Unmanned Ground Military and Construction Systems Technology Gaps Exploration
Eugeniusz Budny, Piotr Szynekarczyk and JÓzef Wrona
- 16:30 E-3-4
Immersive virtual environment as a promising tool for the elderly-friendly assistive robot
Jeonghwan Kim, Seung Hyun Cha and Choongwan Koo
- 16:45 E-3-5
Survey of the line of sight characteristics of construction machine operators to improve the efficiency of unmanned construction
Mitsuru Yamada, Kenichi Fujino, Hiroki Kajita and Takeshi Hashimoto
- 17:00 E-3-6
Technical Review of Automated System Application to Earthworks in Australia
Nayab Ahmed, Abraham Hong, Hyeonggyun Ku, Sungkon Moon and Sungwoo Moon

Friday, June 30, 2017

Registration Open

08:30-15:30 @ 1F, International Building (IB)

<Room 101, IB>

09:00:09:40

Keynote Session 3

Chair: Hung-Ming Chen

Cloud-Based Construction Information Management and Decision Support System

Prof. Min-Yuan Cheng, National Taiwan University of Science and Technology

09:40-10:00 COFFEE BREAK & POSTER VIEWING

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Thursday, June 29, 2017

<Room 101, IB>

10:00-11:40

Symposium A-4: BIM & Automation

Chair: Jochen Teizer

- 10:00 A-4-1
Internet of Things (IoT) for Integrating Environmental and Localization Data in Building Information Modeling (BIM)
Jochen Teizer, Mario Wolf, Olga Golovina, Manuel Perschewski, Matthias Neges and Markus Kö
- 10:15 A-4-2
Using BIM to Automate Scaffolding Planning for Risk Analysis at Construction Sites
Chung-Wei Feng and Szu-Wei Lu
- 10:30 A-4-3
Using BIM to Automate Information Generation for Assembling Scaffolding-A Material Management Approach
Chung Wei Feng and Tzu Fang Hsu
- 10:45 A-4-4
PAD Based 3D Earthwork BIM Design Module for Machine Guidance
Waqas Tanoli, Hassnain Raza, Seungsoo Lee and Jongwon Seo
- 11:00 A-4-5
Towards life cycle complete BIM
Sven Stumm, Elisa Lublasser, Ralf Becker, Jörg Blankenbach, Dirk Vallée, Linda Hildebrand, Sigrid Brell-Cokcan and Philipp Schwan
- 11:15 A-4-6
BIM for the Steel Fabrication Industry Robotic Systems
Pedro Tavares, Carlos Costa, Pedro Malaca, João Silva, Luis Rocha and Germano Veiga

<Room 201, IB>

10:00-11:40

Symposium B-4: Construction Robotics (III) / Inspection & Monitoring

Chair: Johnson Xuesong Shen

- 10:00 B-4-1
Simulating and Executing UAV-Assisted Inspections on Construction Sites
Henk Freimuth, Jan Müller and Markus König
- 10:15 B-4-2
Autonomous Robotic System with Tunnel Inspection Tool Positioning
Elisabeth Menendez, Juan G. Victores, Roberto Montero and Carlos Balaguer
- 10:30 B-4-3
An improved robot for bridge inspection
Harriet Peel, Anthony Cohn, Raul Fuentes and Shan Luo
- 10:45 B-4-4
The Variable Guide Frame Vehicle for Tunnel Inspection
Satoru Nakamura, Yusuke Takahashi, Daisuke Inoue and Takao Ueno
- 11:00 B-4-5
Shape Control of Variable Guide Frame for Tunnel Wall Inspection
Fumihiko Inoue, Kwoon Soonsu, Takuya Uchiyama, Satoru Nakamura and Yoshitaka Yanagihara
- 11:15 B-4-6
High Level Framework for Bridge Inspection Using LiDAR-equipped UAV
Neshat Bolourian, Mohammad Mostafa Soltani, Amin Hammad and Ameen Albahri

<Room 202, IB>

10:00-11:40

Symposium C-4: Computer Vision

Chair: Quang Ha

- 10:00 C-4-1
A Cascaded Classifier Approach to Window Detection in Facade Images
Marcel Neuhausen, Alexander Martin and Markus König
- 10:15 C-4-2
Comparison of hand held devices for 3D reconstruction in Construction
Madhumitha Senthilvel, Ranjith K Soman and Koshy Varghese
- 10:30 C-4-3
Low-latency Vision-based Fiducial Detection and Localization For Object Tracking
Ansu Man Singh, Quang Ha, David K Wood and Mark Bishop
- 10:45 C-4-4
Photogrammetric Models using Oblique Aerial Imagery for Construction Site Surveying
Anoop Sattineni and James Hindman
- 11:00 C-4-5
Developing the GIS-expert system for investigating land use designations
Petcharat Limsupreeyarat, Suriya Kaewkeaw and Phatsaphan Charnwasunth
- 11:15 C-4-6
Experiment of Mobile Light-section Device for Automatic Crack Inspection on Actual-size Tunnel Lining Concrete
Daisuke Inoue, Takao Ueno and Satoru Nakamura

<Room 301, IB>

10:00-11:40

Symposium D-4: Construction Management

Chair: Jozef Gašparík

- 10:00 D-4-1
Method of Optimal Machine Selection for Construction Processes from the Point of Its Energy
Jozef Gašparík, Lucia Paulovičová, Sylvia Szalayová and Marián Gašparík
- 10:15 D-4-2
Collaborative Advanced Building Methodology toward Industrialization of Informal Settlements in Cairo
Camilla Follini, Rongbo Hu, Wen Pan, Thomas Linner and Thomas Bock
- 10:30 D-4-3
Control and optimization tools for the incorporation of innovative technologies in Net Zero
Slava Shubin, Shabtai Isaac and Gad Rabinowitz
- 10:45 D-4-4
Application of Configuration Management for Engineering Information Management in Pipeline Projects
Doyun Lee, Seokyung Won, Choonghee Han, Moonyoung Cho and Junbok Lee
- 11:00 D-4-5
Leading safety indicators and automated tools in the construction industry
Rita Yi Man Li and Tat Ho Leung
- 11:15 D-2-1
Comparison of Bridge Inspection Methodologies and Evaluation Criteria in Taiwan and Foreign
Hsien-Ke Liao, Mustapha Jallow, Nie-Jia Yau, Ming-Yi Jiang, Jyun-Hao Huang, Cheng-Wei Su and

<Room 302, IB>

10:00-11:40

Industry Session 1

Chair: Benny Raphael

- 10:00 **BIM Hub, a BIM Collaboration Management Platform in practice**
Shiem-Min Chen, Wei-Hsiang Wang
- 10:30 **BIM-based immersive virtual environments as a tool for efficient space planning**
Seung Hyun Cha

11:40-12:50 LUNCH

<Room 101, IB>

13:00-14:40

Symposium A-5: BIM & Project Management

Chair: Osama Moselhi

- 12:50 A-5-1
Integration of offsite and onsite schedules in modular construction
Tarek Salama, Ahmad Salah and Osama Moselhi
- 13:05 A-5-2
Development of the Process Information Modelling in the construction project: A case study of the ZERO-PLUS project
Wen Pan, Katharina Langosch and Thomas Bock
- 13:20 A-5-3
Employing Ontology and BIM to Facilitate the Information for Subcontractor's Payment Requests and Ledger Generation
Chung-Wei Feng, Yi-Jao Chen and Hsin-Yi Yu
- 13:35 A-5-4
An Integrated Methodology for Construction BIM & ERP by using UML Tool
Yen-Ray Chen and H. Ping Tserng
- 13:50 A-5-5
Empirical Research on BIM Application for Cost Estimation of HVAC System in Buildings
Sy-Jye Guo, Li-Wei Chiang, Jyun-Yu Chen and Un-On Chong
- 14:05 A-5-6
Integrated Activity Scheduling and Site Layout Planning
Shabtai Isaac, Yi Su and Gunnar Lucko

<Room 201, IB>

13:00-14:40

Symposium B-5: Construction Robotics (VI) / UAV Applications

Chair: Hyoungkwan Kim

- 12:50 B-5-1
Automatic Generation of 3D Models from UAV-captured Image Data for Immersive VR
Nei-Hao Perng, Bo-Sheng Bai, Po-Han Chen, Jen-Yu Han, Ming-Yi Jiang, Jyun-Hao Huang, Cheng-Wei Su and Po-Yuan Chen
- 13:05 B-5-2
Adaptive Second-order Sliding Mode Control of UAVs for Civil Applications
Van Truong Hoang, Ansu Man Singh, Manh Duong Phung and Quang Ha
- 13:20 B-5-3
Automatic Crack Detection in Built Infrastructure Using Unmanned Aerial Vehicles
Manh Duong Phung, Van Truong Hoang, Tran Hiep Dinh and Quang Ha
- 13:35 B-5-4
Vision-based 2D Map Generation for Monitoring Construction Sites using UAV videos
Seongdeok Bang, Hongjo Kim and Hyoungkwan Kim
- 13:50 B-5-5
Investigating the accuracy of 3D models created using SfM
Kosei Ishida
- 14:05 B-5-6
Construction Inspection through Spatial Database
Ahmad Hasan, Ashraf Qadir, Ian Nordeng and Jeremiah Neubert

<Room 202, IB>

13:00-14:40

Symposium C-5: Laser Scanning / Big Data

Chair: Yong Kwon Cho

- 12:50 C-5-1
Developing a Pattern Model of Damage Types on Bridge Elements Using Big Data Analytics
Soram Lim, Sehwan Chung and Seokho Chi
- 13:05 C-5-2
Prediction of Concrete Compressive Strength from Early Age Test Result Using an Advanced Metaheuristic-Based Machine Learning Technique
Doddy Prayogo, Min-Yuan Cheng, Janice Widjaja, Hansel Ongkowijoyo and Handy Prayogo
- 13:20 C-5-3
An Investigation of Google Tango® Tablet for Low Cost 3D Scanning
Mark Froehlich, Salman Azhar and Matthew Vanture
- 13:35 C-5-4
Building element recognition with thermal-mapped point clouds
Pileun Kim, Jindao Chen and Yong K Cho
- 13:50 C-5-5
Optimal placement of precast bridge deck slabs with respect to precast girders using LiDAR
Seongheum Yoon, Qian Wang and Hoon Sohn
- 14:05 C-5-6
Using SLAM-based Handheld Laser Scanning to Gain Information on Difficult-to-access Areas for Use in Maintenance Model
Tommi Makkonen, Rauno Heikkilä, Filip Fedorik and Pekka Töllli

<Room 301, IB>

13:00-14:40

Symposium D-5: Energy & Sustainability

Chair: Nan Li

- 12:50 D-5-1
Hybrid Ventilation Potential Investigation for Small and Medium Office Building in Different US Climates Under Uncertainties
Jianli Chen, Godfried Augenbroe and Xinyi Song
- 13:05 D-5-2
Assessment of Utilizing Mobile App in Delivering Eco-Feedback Information for Building Energy Conservation
Jing Lin, Guofeng Ma, Nan Li and Junjie Zhou
- 13:20 D-5-3
Integration of Control Policies for Comfort Improvement in a Large Public Building
Massimo Vaccarini, Alessandro Piccinini, Letizia D'Angelo and Alessandro Carbonari
- 13:35 D-5-4
Mitigating High Energy Consumption for residential Buildings in The Gambia.
Saikou Sonko and Tsung-Juang Wang
- 13:50 D-5-5
An Empirical Investigation on Construction Companies Readiness for Adopting Sustainable Technology
Mona Foroozanfar and Samad Ebrahimzadeh Sepasgozar

<Room 302, IB>

13:00-14:40

Industry Session 2

Chair: Jong Won Seo

13:00 MAA total BIM solutions: Now and Beyond

Yi-Lun Chen

13:30 Alternative Method of Representing Cost in 5D Construction Visualization for Improved Financial Decision Making

Akshay Patel and Julian Kang

14:40-15:00 COFFEE BREAK & POSTER VIEWING

<Room 101, IB>

15:00-16:40

Symposium A-6: BIM Applications

Chair: Jack C.P. Cheng

14:50 A-6-1

Challenges to the Utilization of BIM in the Palestinian Construction Industry

Adnan Enshassi and Lina Abo Hamra

15:05 A-6-2

A Methodology of Building Code Checking System for Building Permission based on BIM

Jungsik Choi and Inhan Kim

15:20 A-6-3

Contribution to the Study of Collaborative Working in BIM-Based Projects in the Context of Public Works

Giuseppe Miceli Junior, Andre Cruz Teixeira and Paulo Cesar Pellanda

15:35 A-6-4

Improving Indoor Acoustics Performance of Concert Halls Using Building Information Modeling

Yi Tan, Yi Fang, Teng Zhou, Qian Wang and Jack C.P. Cheng

15:50 A-6-5

Smoothing process of developing the construction MEP BIM model - a case study of the fire-fighting system

Wei-Ting Lin and Chung-Wei Feng

16:05 A-6-6

Changes in the BIM Service Provision of Top BIM Companies: A Five-Year Longitudinal Study

Namcheol Jung and Ghang Lee

<Room 201, IB>

15:00-16:40

Symposium B-6: Planning & Positioning

Chair: William O'Brien

14:50 B-6-1

Cartesian-Space Motion Planning for Autonomous Construction Manipulators

Matteo Ragaglia, Alfredo Argiolas and Marta Niccolini

15:05 B-6-2

Attitude and Position Estimation of Dozer Blade in 3-Dimensional by Integration of IMU with Two RTK GPSs

Dong-Ik Sun, Chang Soo Han, Yong Seok Lee, Sang Ho Kim and Sang Keun Lee

15:20 B-6-3

Optimal Variable Speed Limit Control under Connected Work Zone and Connected Vehicle Environment

Shuming Du, Saiedeh Razavi and Wade Genders

15:35 B-6-4

A behaviour based architecture for excavation tasks

Tobias Groll, Steffen Hemer, Thorsten Ropertz and Karsten Berns

15:50 B-6-5

Modelling of industrial robotic brick system

Michal Bruzl, Vyacheslav Usmanov, Rostislav Šulc and Pavel Svoboda

<Room 202, IB>

15:00-16:40

Symposium C-6: Computer Vision / Sensing & Monitoring

Chair: Yo-Ming Hsieh

- 14:50 C-6-1
Efficient Face Recognition Using FPGA and Semantic Features for Security Controls
Ying-Hao Yu, Yu-Chen Xu, Yi-Siang Ting and Ngaiming Kwok
- 15:05 C-6-2
BIM-based Indoor Positioning Technology Using a Monocular Camera
Yichuan Deng, Hao Hong, Hui Deng and Han Luo
- 15:20 C-6-3
RTLS systems as a Lean Management tool for productivity improvement
Piotr Nowotarski, Jerzy Paslawski, Maciej Skrzypczak and Radosław Krygier
- 15:35 C-6-4
Sliding behavior monitoring of a deep seated landslide with differential interferometric synthetic aperture radar, mems tiltmeter and unmanned vehicle images
Kuo-Lung Wang, Yo-Ming Hsieh, Jun-Ting Lin and Ming-Hsiang Hsi
- 15:50 C-6-5
An Integration of Wi-Fi Based Locating System and GIS for Improving Construction Labour Communications
Sara Shirowzhan, Samad M.E. Sepasgozar, Izmil Zaini and Cynthia Wang

<Room 301, IB>

15:00-16:40

Symposium D-6: Project Management

Chair: Pawan Pandey

- 14:50 D-6-4
Activity Based Prediction of On-site CO2 Emissions Containing Uncertainty
Chulu Nam, Dongyoun Lee, Goune Kang, Hunhee Cho and Kyung-In Kang
- 15:05 D-6-1
Web-Based Integrated Project Controls System
Ahmed Montaser and Ali Montaser
- 15:20 D-6-2
Dynamic Scheduling Framework to Overcome Deficiency of Skilled Workers
Pawan Pandey, Uma Maheswari and Ratnesh Kumar
- 15:35 D-6-3
Sharing roles and responsibilities of construction project delivery methods in Taiwan
Hsiang-Wen Li and Tsung-Chieh Tsai
- 15:50 D-6-5
Effectiveness of On-Site Communication in Residential Housing Projects
Maya Lestari Djajalaksana, Payam Rahnamayiezekavat and Sungkon Moon
- 16:05 D-6-6
Interaction Matters? Exploring Interactive Music as a Reminder to Break Sedentary Office
Xipei Ren, Yuan Lu, Vincent Visser, P.D.Huy Le and Reijn van den Burg

<Room 302, IB>

15:00-16:40

Industry Session 3

Chair: Sy-Jye Guo

- 15:00 **A Comprehensive BIM-enabled FM System**
Fu-Cih Siao, Chih-Chuan Lin, Chang-Tien Chou, Hsiang-Wai Lu, Jui-Yu Su
- 15:30 **The methodology of raising the productivity of the BIM team in CEC**
Chien-Hsun Huang, Chih-Yun Chiang

17:30-20:00

Banquet

*The shuttle bus will be provided.

Assembling Time: 16:50

Assembling Place: Registration Counter, 1F, International Building (IB)