

ISARC 2014

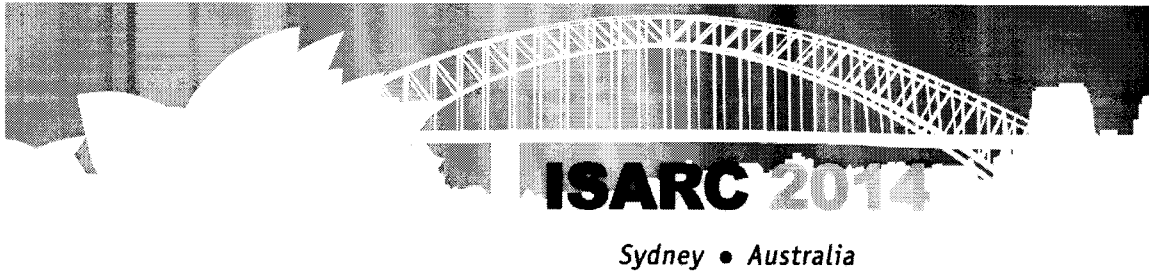
Proceedings of the 31st International Symposium on
Automation and Robotics in Construction and Mining

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Sydney, NSW, Australia

Edited by:
Quang Ha, Xuesong Shen, and Ali Akbarnezhad



**International Association for
Automation and Robotics in Construction**



AUTOMATION, CONSTRUCTION AND ENVIRONMENT

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FOREWORD - MESSAGE FROM THE CHAIR

Welcome to the 31st International Symposium on Automation and Robotics in Construction and Mining (ISARC2014) in Sydney, Australia from July 9th to 11th, at the Aerial Function Centre, the University of Technology, Sydney (UTS). It is our great honour and pleasure to welcome you to ISARC2014.

The ISARC series have been organised by members of the International Association for Automation and Robotics in Construction (IAARC) to address the needs and concerns of a global community in all fields of construction, including civil and building engineering, machine automation, robotics applications to construction, mining automation, infrastructure networks, construction and environmental sustainability, Information Technology innovations, planning, logistics, etc. IAARC welcomes participation from other industrial sectors and governments.

This year's ISARC theme is Automation, Construction and Environment. Apart from addressing latest advances in automation and robotic technologies for construction, building and mining, ISARC2014 has a specific focus on efficiency, productivity, quality, and reliability attributes of the construction/mining automation process and its interactions with the environment.

ISARC2014 has received a total of 230 submissions from 33 countries, all of which have been peer-reviewed by international experts, Track Chairs and the Program Committee. With 136 papers being included for presentations, the ISARC2014 has an acceptance rate less than 60%. The Technical Program features five Keynotes, including a Tucker-Hasegawa speech, 5 invited papers, 30 parallel sessions, a workshop and 2 Lab tours.

We would like to take this opportunity to gratefully acknowledge ISARC2014 sponsors, namely, The New South Wales Government under its Research Attraction and Acceleration Program, The Australasian Joint Research Centre on Building Information Modelling at Curtin University, The Institute for Infrastructure Engineering at The University of Western Sydney, The Faculty of Design Architecture & Building, Faculty of Engineering & IT at UTS, and IAARC.

We would like to extend our great gratitude to all the contributors who submitted abstracts and papers to ISARC2014. Your excellent work ensures the quality and impact of this symposium! Many thanks also go to all members of the Organising Committee, IAARC Board of Directors, Program Committee, Track Chairs, reviewers, volunteers and everyone who contributed in one way or another to ISARC2014. Your continued efforts are the foundation of the success for this symposium; it has been truly a great pleasure to work with all of you!

In addition to the Technical Program, ISARC2014 has a number of social programs, including Welcome Reception, Farewell Lunch, and Gala Dinner accompanied by a special concert, led by Guest Performers from The Australian National University and Bridgewater State University, USA, on the interrelation of science and technology with nature to illustrate the symposium theme via music.

We do hope that ISARC2014 provides substantial opportunities for collegial networking and friendship development. This is the first time the symposium takes place in the Southern hemisphere, and particularly, at UTS, located in the heart of the spectacular Sydney, which has been ranked among the top cities over the world to live in and to visit.

We wish you a rewarding symposium and a pleasant time here in Sydney, Australia!

Quang Ha
General Chair, ISARC2014
Sydney, Winter 2014

TRACKS AND TRACK CHAIRS

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- Track** **Construction Management**
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- Track** **Mining, Built Infrastructure and Human Factors**
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- Track** **Robotics and Mechatronics**
Chair Hung La (University of Nevada, USA)
- Track** **Sensing and Communication**
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CONTENTS

<u>SPONSORS</u>	<u>iii</u>
<u>FOREWORD - MESSAGE FROM THE CHAIR</u>	<u>iv</u>
<u>CONFERENCE COMMITTEES</u>	<u>v</u>
<u>TRACKS AND TRACK CHAIRS</u>	<u>vi</u>
<u>REVIEWERS</u>	<u>vii</u>
<u>TUCKER-HASEGAWA KEYNOTE</u>	<u>1</u>
<u>Construction Automation Needs and Challenges in Emerging Countries</u>	<u>2</u>
<u><i>Koshy Varghese</i></u>	
<u>KEYNOTE PAPERS</u>	<u>3</u>
<u>The Challenges and Trends of Building Information Modelling (BIM) for Construction and Resources Sectors</u>	<u>4</u>
<u><i>Xiangyu Wang and Heap-Yih Chong</i></u>	
<u>Options for Sustainable Energy Planning for Australia</u>	<u>7</u>
<u><i>Merched Azzi</i></u>	
<u>Ki-NEW-Matics</u>	<u>11</u>
<u><i>Thomas Bock</i></u>	
<u>Towards Fully Automated Tunnel Inspection: A Survey and Future Trends</u>	<u>19</u>
<u><i>C. Balaguer, R. Montero, J. G. Victores, S. Martínez, A. Jardón</i></u>	
<u>INVITED PAPERS</u>	<u>34</u>
<u>Economic Model Predictive Control - A Review</u>	<u>35</u>
<u><i>Tri Tran, Keck Voon Ling and Jan M. Maciejowski</i></u>	
<u>Infrastructure Robotics: Research Challenges and Opportunities</u>	<u>43</u>
<u><i>Dikai Liu, Gamini Dissanayake, Jaime Valls Miro and Kenneth Waldron</i></u>	
<u>Visual and Acoustic Data Analysis for the Bridge Deck Inspection Robotic System</u>	<u>50</u>
<u><i>Hung La, Nenad Gucunski, Seong-Hoon Kee and Luan Nguyen</i></u>	
<u>Demand Response Under the Smart Grid Paradigm</u>	<u>58</u>
<u><i>Michael Negnevitsky</i></u>	

<u>Future Intelligent Civil Structures: Challenges and Opportunities</u> <u>Jianchun Li, Yancheng Li, Mohsen Askari and Quang Ha</u>	<u>72</u>
<u>AUTOMATION AND CONTROL</u>	<u>80</u>
<u>Control of An Adaptive Light Shelf Using Multi-Objective Optimization</u> <u>Benny Raphael</u>	<u>81</u>
<u>Automatic Positioning and Alignment for Hole Navigation in Surface Drilling</u> <u>Tuomo Pirinen, Juha Lassila, Mikko Loimusalo, Juha Pursimo and Sami Hanski</u>	<u>88</u>
<u>A Study on the Thermal Crack Control of Large Turbine Foundation using Automated Curing System</u> <u>Ju-Hyung Ha, Ok-Pin Na, Chang-Keun Lim and Yun-Gu Cho</u>	<u>95</u>
<u>Integrated Approach to Machine Guidance and Operations Monitoring in Tunnel Construction</u> <u>Xuesong Shen, Ming Lu, Sheng Mao and Xiaodong Wu</u>	<u>103</u>
<u>Dynamic Risk Assessment in Construction Projects Using Bayesian Networks</u> <u>Limao Zhang, Xianguo Wu, Mirosław J. Skibniewski and Jingbing Zhong</u>	<u>110</u>
<u>Nonlinear Flatness-Based Controller for Permanent Magnet-Excited Synchronous Motor</u> <u>Pham Tam Thanh and Nguyen Dinh That</u>	<u>120</u>
<u>Modified Discrete Event Simulation Algorithm for Control of Automated Construction Operations</u> <u>Joseph Louis and Phillip Dunston</u>	<u>126</u>
<u>Performance Test for Rapid Surface Modeling of Dynamic Construction Equipment from Laser Scanner Data</u> <u>Chao Wang and Yong Cho</u>	<u>134</u>
<u>Space Technologies of Life Support Systems for the Metropolitan Cities</u> <u>Natalia Buzalo, Alexej Bulgakov and Thomas Bock</u>	<u>142</u>
<u>Offshore Container Crane Systems with Robust Optimal Sliding Mode Control</u> <u>R. M. T. Raja Ismail, Nguyen D. That and Quang Ha</u>	<u>149</u>
<u>Force Control of Cleaning Tool System for Building Wall Maintenance Robot on Built-in Guide Rail</u> <u>Chang-Yeob Shin, Sung-Min Moon, Jun-Ho Kwon, Jaemyung Huh and Daehie Hong</u>	<u>157</u>
<u>Towards Autonomous Robotic In-Situ Assembly on Unstructured Construction Sites Using Monocular Vision</u> <u>Chen Feng, Yong Xiao, Aaron Willette, Wesley McGee and Vineet Kamat</u>	<u>163</u>
<u>Automated Dynamic Management of Road Construction Sites</u> <u>Rauno Heikkilä, Esa Viljamaa, Annemari Kaaranka, Tomi Makkonen and Irina Peltoma</u>	<u>171</u>
<u>A New Hysteretic Model for Magnetorheological Elastomer Base Isolator and Parameter Identification Based on Modified Artificial Fish Swarm Algorithm</u> <u>Yang Yu, Yancheng Li and Jianchun Li</u>	<u>176</u>

<u>BUILDING AND ARCHITECTURE</u>	<u>184</u>
<u>Development of Lightweight BIM Shape Format Structure to Represent Large Volume Geometry Objects Using GIS with Facility Management</u> <i>Tae Wook Kang and Chang Hee Hong</i>	<u>185</u>
<u>The Adoption of Building Information Modeling in the Design Organization: An Empirical Study of Architects in Korean Design Firms</u> <i>Hyojoo Son, Sungwook Lee, Nahyae Hwang and Changwan Kim</i>	<u>194</u>
<u>A Demonstration of BIM-enabled Quantitative Circulation Analysis using BERA Language</u> <i>Hyunsoo Lee, Jisoo Kim, Minkyu Shin, Inhan Kim and Jin-Kook Lee</i>	<u>202</u>
<u>Graph-based Representation of Building Circulation with the Most-Remote Point and Virtual Space Objects</u> <i>Jisoo Kim, Hyunsoo Lee, Minkyu Shin, Jinwon Choi and Jin-Kook Lee</i>	<u>210</u>
<u>An Integrated Approach to the Visualization of Indoor Temperature Changes on the Floor Plans</u> <i>Minkyu Shin, Sang-Ik Lee, Jisoo Kim, Hyunsoo Lee, Gyuveob Jeon and Jin-Kook Lee</i>	<u>217</u>
<u>Application of Dijkstra's Algorithm in the Smart Exit Sign</u> <i>Jehyun Cho, Ghang Lee, Jongsung Won and Eunseo Ryu</i>	<u>224</u>
<u>Smart Housing for Reducing Energy Use in Single Households, Emphasizing Effective Energy Management</u> <i>Sung Jun Park, Mi Jeong Kim and Sung-Yul Kim</i>	<u>230</u>
<u>Is There Really A Case for Off-site Manufacturing?</u> <i>Edward Duc, Perry Forsythe and Kirsten Orr</i>	<u>238</u>
<u>Building Arrangement Optimization for Urban Ventilation Potential Using Genetic Algorithm and CFD Simulation</u> <i>Jongyeon Lim and Ryoza Ooka</i>	<u>247</u>
<u>CONSTRUCTION MANAGEMENT</u>	<u>253</u>
<u>Wood-Frame Wall Panel Sequencing Based on Discrete-Event Simulation and Particle Swarm Optimization</u> <i>Mohammed Sadiq Altaf, Mohamed Al-Hussein and Haitao Yu</i>	<u>254</u>
<u>Integrated Visualization and Simulation for Lifting Operations of Modules under Congested Environment</u> <i>Sanghyeok Han, Zhen Lei, Ahmed Bouferguène, Mohamed Al-Hussein and Ulrich Hermann</i>	<u>262</u>
<u>Post-Simulation Visualization Application for Production Improvement of Modular Construction Manufacturing</u> <i>Mana Moghadam, Beda Barkokebas and Mohamed Al-Hussein</i>	<u>270</u>
<u>Improving Productivity of Yard Trucks in Port Container Terminal Using Computer Simulation</u>	<u>278</u>

Essmeil Ahmed, Tarek Zaved and Sabah Alkass

<u>BIM-based Integrated Framework for Detailed Cost Estimation and Schedule Planning of Construction Projects</u> <i>Hexu Liu, Ming Lu and Mohamed Al-Hussein</i>	286
<u>A Discrete Firefly Algorithm for the Scaffolding Modular Construction in Mega Projects</u> <i>Jianjun Liu, Lei Hou and Xiangyu Wang</i>	295
<u>Enhanced Online LS-SVM Using EMD Algorithm for Prices Prediction of Building Materials</u> <i>Ying-Hao Yu, Hsiao-Che Chien, Pi-Hui Ting, Jung-Yi Jiang and Pei-Yin Chen</i>	302
<u>An Interactive Progress Monitoring System using Image Processing in Mobile Computing Environment</u> <i>Hongjo Kim, Kinam Kim, Sungjae Park, Jihoon Kim and Hyoungkwan Kim</i>	309
<u>Constructability and Safety Performance based Design: a Design and Assessment Tool for the Building Process</u> <i>Pietro Capone, Vito Getuli and Tommaso Giusti</i>	313
<u>Integrating Building Information Modelling and Firefly Algorithm to Optimize Tower Crane Layout</u> <i>Jun Wang, Jianjun Liu, Wenchi Shou, Xiangyu Wang and Lei Hou</i>	321
<u>A Model for Construction Contractor Selection Using Competitive Intelligence (CI)</u> <i>Mahdi Safa, Arash Shahi, Carl Haas, Majeed Safa, Keith Hipel, Sandra MacGillivray and Dawn Fiander-Mccann</i>	329
<u>Safety Management for Existing Buildings in Tunnel Construction</u> <i>Limao Zhang, Xianguo Wu, Mirosław J. Skibniewski and Hongyu Chen</i>	337
<u>Developing Technology-assisted Multi-disciplinary Learning Strategies</u> <i>Shalini Gandhi, Shankar Sankaran, Michael Er, Kirsten Orr and Hadi Khabbaz</i>	346
<u>Safety Practices in the Lebanese Construction Market: Contractors' Perspective</u> <i>Rita Awwad, Melanie Jabhour and Omar El Souki</i>	354
<u>5D-BIM: A Case Study of An Implementation Strategy in the Construction Industry</u> <i>Anoop Sattineni and Jennifer A. Macdonald</i>	361
<u>Simulation of On-Shore Wind Farm Construction Process in Lebanon</u> <i>Emile Zankoul and Hiam Khoury</i>	368
<u>Developing An Ontology-Based Representation Framework for Establishing Cost Analysis Knowledge Base for Construction Work Items</u> <i>Han-Hsiang Wang, Shao-Wei Weng, Abdoul Aziz Gansonre and Wei-Chih Wang</i>	377
<u>Estimating the Costs, Energy Use and Carbon Emissions of Concrete Recycling Using Building Information Modelling</u> <i>Ali Akbarnezhad and Zahra Moussavi Nadoushani</i>	385
<u>An Integrated 5D Tool for Quantification of Construction Process Emissions and Accident Identification</u> <i>Johnny Kwok Wai Wong, Heng Li, Greg Chan, Haoran Wang, Ting Huang and Eric Luo</i>	393

<u>Employing Ant Colony for the Optimal Reduction of Project Risk Severity</u> <i>Nael Zabel, Maged Georgy and Moheeb Ibrahim</i>	398
<u>Incorporating Uncertainty into Project Schedule Crashing: An Algorithm</u> <i>Ehab Subhy, Maged Georgy and Moheeb Ibrahim</i>	404
<u>Automation for Mobile Crane Motion Planning in Industrial Projects</u> <i>Zhen Lei, Sanghyeok Han, Ahmed Bouferguène, Mohamed Al-Hussein and Ulrich Hermann</i>	410
<u>A Study on Significance of System Dynamics Approach in Understanding Adoption of Information Technology in Building Construction Projects</u> <i>Vinay Mathews, Koshy Varghese and Ashwin Mahalingam</i>	418
<u>Learning Effect of Interior Finishing and Building Services Works for Multi-Dwelling Complex Project</u> <i>Naoto Mine, Abdullateef Olanrewaju and Masaki Takeuchi</i>	426
<u>A Knowledge-Based Framework for Quantity Takeoff and Cost Estimation in the AEC Industry Using BIM</u> <i>Shiva Arani, Charles Eastman and Rafael Sacks</i>	434
<u>The Power of Technology in Bridge Construction Project Management</u> <i>Fahimeh Zaeri and James Rotimi</i>	443
<u>A BIM Based Construction Site Layout Planning Framework Considering Actual Travel Paths</u> <i>Jack Cheng and Srinath Kumar</i>	450
<u>Contrivances to Assist Forest Machine Operator on Forest Road with Steep Slope</u> <i>Katsutoshi Saibara, Shigeomi Nishigaki, Fujio Matsuda and Shinichi Kubota</i>	458
<u>Importance of Planning for the Transport Stage in Procurement of Construction Materials</u> <i>Alireza Ahmadian Fard Fini, Ali Akbarnezhad, Taha Hossein Rashidi and Steven Travis Waller</i>	466
<u>A Formwork Layout Model based on Genetic Algorithm</u> <i>Dongmin Lee, Hyeonsu Lim, Taehoon Kim, Hunhee Cho and Kyung-In Kang</i>	474
<u>The Case for BIM Uptake among Small Construction Contracting Businesses</u> <i>Perry Forsythe</i>	480
<u>ENERGY AND ENVIRONMENT</u>	488
<u>Energy-Efficient Air-Cooled DX Air-Conditioning Systems with Liquid Pressure Amplification</u> <i>Vahid Vakiloroaya and Quang Ha</i>	489
<u>A Closed-loop System of Construction and Demolition Waste Recycling</u> <i>Jane Brennan, Grace Ding, Robert Wonschik and Kirk Vessalas</i>	499
<u>Development and First Testing of a Framework for Predictive Energy Control of Underground Stations</u>	506

Alberto Giretti, Roberta Ansuini and Alessandro Carbonari

Task Specific Trajectory Profile Selection for Energy Efficient Servo Drive Movements 514
Christian Hansen, Kai Eggers, Jens Kottlarski and Tobias Ormaier

Implications of Legal Frameworks on Construction and Demolition Waste Recycling -
A Comparative Study of the German and Australian Systems 523
Robert Wonschik, Jane Brennan, Grace Ding, Andrea Heilmann and Kirk Vessalas

Predicting Energy Usage Using Historical Data and Linear Models 531
Majeed Safa, Jeremy Allen and Mahdi Safa

Labor Management in Masonry Construction: A Sustainable Approach 536
Laura Florez and Daniel Castro-Lacouture

Modelling October 2013 Bushfire Pollution Episode in New South Wales, Australia 544
Hiep Nguyen Duc, Sean Watt, David Salter and Toan Triet

Towards Measuring the Impact of Personal Control on Energy Use through the Use
of Immersive Virtual Environments 549
Arsalan Heydarian, Joao Carneiro, David Gerber and Burcin Becerik-Gerber

Automatic Power Managing and Monitoring System Applying for Underground Mines
in Vinacomin 557
Tuan Anh Vu and The Nam Vu

Integrating Energy Simulation in Energy Saving Analysis of Taiwan's Green
Hospital Buildings 561
Po-Han Chen and Meng-Shen Kan

Measurement Scheme and Automatic Prediction for Ground Vibration Induced by
High-Speed Rail on Embankments 568
Yit-Jin Chen, Yi-Jiun Shen and Chi-Jim Chen

GIS-BIM Framework for Integrating Urban Systems, Waste Stream and Algal Cultivation
in Residential Construction 576
Daniel Castro-Lacouture, Steven Jige Ouan and Perry Pei-Ju Yang

Prediction of NO_x Vehicular Emissions using On-Board Measurement and
Chassis Dynamometer Testing 584
Seth Daniel Oduro, Santanu Metia, Hiep Duc, Quang Hong and Quang Ha

IT APPLICATIONS 592

Application of Building Information Modeling in Designing Fire Evacuation – A Case Study 593
*Kun-Chi Wang, Shih-Yu Shih, Wen-Shuo Chan, Wei-Chih Wang, Shih-Hsu Wang, Abdoul-
Aziz Gansonre, Jang-Jeng Liu, Ming-Tsung Lee, Yuan-Yuan Cheng and Ming-Feng Yeh*

General Information Model and Its Application for Rock Excavation in Underground
Work Sites 602
Esa Viljamaa, Irina Peltomaa and Annemari Kaaranka

Performance and Impacts of Web-based Project Management Systems in Construction 610

Projects

Hemanta Doloi

<u>Integration of Augmented Reality and Indoor Positioning Technologies for On-site Viewing of BIM Information</u> <i>Hung-Ming Chen and Ting-Yu Chang</i>	616
<u>Towards 3-D Shape Restructuring for Rapid Prototyping of Joining Interface System</u> <i>Seong-Ki Lee, Christos Georgoulas and Thomas Bock</i>	624
<u>Reactive Adaptation of Construction Schedules by Applying Simulation-based Optimization</u> <i>Kamil Szczesny and Markus König</i>	632
<u>Detection of Internal Defects in As-Built Pipelines for Structural Health Monitoring: A Sensor Fusion Approach Using Infrared Thermography Combined with 3D Laser-Scanned Data</u> <i>Hyojoo Son, Changmin Kim and Changwan Kim</i>	640
<u>Roadmap to Guide Construction Safety Research Commercialization</u> <i>Aaron Costin, Jakub Felkl, Olga Golovina and Joehen Teizer</i>	646
<u>Exploring Local Feature Descriptors for Construction Site Video Stabilization</u> <i>Jung Yeol Kim and Carlos Caldas</i>	654
<u>A Novel Inference Model for Post-Earthquake Bridge Safety and Failure Probabilities Prediction - A Case Study in Taiwan</u> <i>Min-Yuan Cheng, Yu-Wei Wu, Yung-Fang Chiu, Yu-Chen Ou and Chien-Kuo Chiu</i>	661
<u>BIM based Schedule Control for Precast Concrete Supply Chain</u> <i>Jaakko Nissilä, Rauno Heikkilä, Ilkka Romo, Mikko Malaska and Timo Aho</i>	667
<u>Information Modelling based Tunnel Design and Construction Process</u> <i>Rauno Heikkilä, Annemari Kaaranka and Tomi Makkonen</i>	672
<u>Rapid 3D Modeling of an Existing Building using Photos</u> <i>Yang Liu and Julian Kang</i>	676
<u>Using Benders Decomposition for Solving Ready Mixed Concrete Dispatching Problems</u> <i>Mojtaba Maghrebi, Vivek Periaraj, S. Travis Waller and Claude Sammut</i>	680
<u>Mining Rules for Satellite Imagery Using Evolutionary Classification Tree</u> <i>Li-Chuan Lien, Yan-Ni Liu, Min-Yuan Cheng and J-Cheng Yeh</i>	689
<u>Roadwork Site 3D Virtual Visualization Using Open Source Game Engine and Open Information Transfer</u> <i>Tomi Makkonen, Rauno Heikkilä, Annemari Kaaranka and Kalervo Nevala</i>	697
<u>The Implementation of BIM In a Large European Construction Company</u> <i>Ger Maas</i>	702
<u>Visualization of As-built Progress Data Using Construction Site Photographs: Two Case Studies</u> <i>Hossein Jadidi, Mehdi Ravanshadnia and Mujtaba Hossein Alipour</i>	706
<u>A Computational Framework for Estimating the Carbon Footprint of Construction</u>	714

Zahra Sadat Moussavi Nadoushani and Ali Akbarnezhad

A Mixed-integer Nonlinear Programming Model for Minimising Construction Site Noise Levels through Site Layout Optimisation 722
Ahmed Hammad, David Rey and Ali Akbarnezhad

MINING, BUILT INFRASTRUCTURE AND HUMAN FACTORS 730

A New LMS Algorithm and Its Application to Improve Quality of Broadcast-telephone System Used in Underground Coal Mines 731
Nguyen The Truyen and Nguyen The Vinh

Optimization and Evaluation of Automatic Rigging Path Guidance for Tele-Operated Construction Crane 738
Hung-Lin Chi, Shih-Chung Kang, Shang-Hsien Hsieh and Xiangyu Wang

Visualization Requirements of Engineers for Risk Assessment of Embankment Dams 746
Varun Kasireddy, Semiha Ergan and Burcu Akinci

Ineffective Rock Breaking and Its Impacts on Pick Failures 754
Yong Sun and Xingsheng Li

ROBOTICS AND MECHATRONICS 761

Control of Hovering Altitude of a Quadrotor with Shifted Centre of Gravity for Inspection of High-rise Structures 762
Alexev Bulgakov, Sergey Emelianov, Thomas Bock and Daher Sayfeddine

Bulldozer as a Mechatronics System with the Intelligent Control 768
Alexev Bulgakov, Thomas Bock and Georgy Tokmakov

Generation the 3D Model Building by Using the Quadcopter 778
Torsten Bertram, Thomas Bock, Alexev Bulgakov and Alexey Evgenov

Performance Evaluation of Mecanum Wheeled Omni-directional Mobile Robot 784
Baeksuk Chu

Cooperative Control of a Single-user Multi-robot Teleoperated System for Maintenance in Offshore Plants 790
Sunghoon Eom, Seungyeol Lee, Deajin Kim, Dongbin Shin and Jeon Il Moon

Home Environment Interaction via Service Robots and the Leap Motion Controller 795
Christos Georgoulas, Ahmad Raza, Jorg Güttler, Thomas Linner and Thomas Bock

SENSING AND COMMUNICATION 804

Experimental Study of Wireless Sensor Networks for Indoor Construction Operations 805
Magdy Ibrahim and Osama Moselhi

Controlling Slab Flatness Automatically using Laser Scanning and BIM 813
Frédéric Bosché and Emeline Guenet

<u>Chip-based Real-time Gesture Tracking for Construction Robot's Guidance</u> <u>Ying-Hao Yu, Chun-Hsien Yeh, Tsu-Tian Lee, Pei-Yin Chen and Yeu-Horng Shiau</u>	<u>821</u>
<u>Comparative Experimental Evaluation of Dust Sensors for Environmental Monitoring on Construction Sites</u> <u>Alessandro Carbonari, Gabriele Fava and Berardo Naticchia</u>	<u>829</u>
<u>Extended Range Guidance System for the Teleoperation of Microtunnelling Machines</u> <u>Alberto Jardón, Santiago Martínez, Juan Gonzalez Victores and Carlos Balaguer</u>	<u>837</u>
<u>A Preliminary Investigation into Automated Identification of Structural Steel Without A Priori Knowledge</u> <u>Jamie Yeung, Mohammad Nahangi, Scott Walbridge and Carl Haas</u>	<u>847</u>
<u>Near-Miss Accident Detection for Ironworkers Using Inertial Measurement Unit Sensors</u> <u>Sepideh S. Aria, Kanghveok Yang, Changbum R. Ahn and Mehmet C. Vuran</u>	<u>854</u>
<u>Localization inside Tunnels Using Machine Vision</u> <u>Yo-Ming Hsieh and Yu-Chin Liao</u>	<u>860</u>
<u>Performance Assessment of Wireless Data Capture in Construction</u> <u>Pavam Rahnamayiezekavat, Sungkon Moon and Leonhard Bernold</u>	<u>868</u>
<u>Implementation of As-Built Information Modelling Using Mobile and Terrestrial Lidar Systems</u> <u>Samad M.E. Sepasgozar, Samsung Lim, Sara Shirowzhan and Yong Min Kim</u>	<u>876</u>
<u>Three Dimensional Spatial Metrics for Compactness Assessment of Urban Forms</u> <u>Sara Shirowzhan and Samsung Lim</u>	<u>884</u>
<u>Human Detection using Gradient Maps and Golden Ratio</u> <u>Feng Su and Gu Fang</u>	<u>890</u>
<u>Autocorrelation Statistics-Based Algorithms for Automatic Ground and Non-ground Classification of Lidar Data</u> <u>Sara Shirowzhan and Samsung Lim</u>	<u>897</u>
<u>POSTER PAPERS</u>	<u>903</u>
<u>A Framework for Supporting Planning and Development of Infrastructure Projects from a Societal Perspective</u> <u>Hemanta Doloi</u>	<u>904</u>
<u>Lessons Learnt from the Vernacular Architecture of Bedouins in Siwa Oasis, Egypt</u> <u>Riham Ahmed</u>	<u>910</u>
<u>Efficient Method of An Optimum Construction Company Supplier Selection Supported by Software</u> <u>Jozef Gašparík and Peter Bažik</u>	<u>918</u>
<u>SOH Estimation of Lithium-ion Batteries for Electric Vehicles</u> <u>Datong Qin, Jingying Huang and Wei Sun</u>	<u>925</u>

<u>Robust Method for Detecting the HRI Device using RANSAC</u> <u><i>Myeongsu Gil, Min-Sung Kang, Yongseok Lee, Seunghoon Lee, Sangho Kim and Changsoo Han</i></u>	<u>929</u>
<u>Knowledge-based Building Information Modeling (K-BIM) for Facilities Management</u> <u><i>V. Paul C. Charlesraj</i></u>	<u>936</u>
<u>Algorithm for Economic Assessment of Infrastructure Adaptation to Climate Change</u> <u><i>Hoyoung Jeong, Hyoungyu Lee, Hongjo Kim and Hyoungkwan Kim</i></u>	<u>942</u>
<u>Development of the BIM based Process for Dredging Works</u> <u><i>Rauno Heikkilä, Tapio Leinonen, Heikki Paukkerie and H. Virtanen</i></u>	<u>948</u>
<u>The Applicability of a Geomagnetic Field based Positioning Technique with Mobile Phone to Underground Tunnels</u> <u><i>Tomi Makkonen, Rauno Heikkilä and Annemari Kaurankaa</i></u>	<u>953</u>
<u>Geotechnical Monitoring for Safe Excavation of Large Rock Cavern: A Case Study</u> <u><i>A. Mandal, C. Kumar, Altaf Usmani and A. Nanda</i></u>	<u>960</u>
<u>Decision Support Model with Life Cycle Assessment for Building in Design Phase</u> <u><i>Chia-Chen Wei, Chia-Chi Hsiang and Tzu-Chi Shan</i></u>	<u>966</u>
<u>A Study on Vertical Zoning Algorithm of Real-Time Construction Lift Control for High-Rise Building</u> <u><i>Joong-Hwan Shin, Soon-Wook Kwon and Dong-Hyun Kim</i></u>	<u>972</u>
<u>Introduction of Human-Robot Cooperation Technology at Construction Sites</u> <u><i>Seungyeol Lee and Jeon Il Moon</i></u>	<u>978</u>
<u>Study on the Optimal Digging Range for Intelligent Excavation</u> <u><i>Jeonghwan Kim, Joonhyun Jang, Leeho Lee and Jongwon Seo</i></u>	<u>984</u>
<u>Information Modelling on Mechanized Earthworks</u> <u><i>Shigeomi Nishigaki, Katsutoshi Saibara and Shigeo Kitahara</i></u>	<u>992</u>
<u>AUTHOR INDEX</u>	<u>1000</u>

AUTHOR INDEX

A

Ahmadian Fard Fini, Alireza	466
Ahmed, Essmeil	278
Ahmed, Riham	910
Ahn, Changbum R.	854
Aho, Timo	667
Akbarnezhad, Ali	385, 466, 714, 722
Akinci, Burcu	746
Al-Hussein, Mohamed	254, 262, 270, 286, 410
Alipour, Mujtaba Hossein	706
Alkass, Sabah	278
Allen, Jeremy	531
Altaf, Mohammed Sadiq	254
Ansuini, Roberta	506
Aram, Shiva	434
Aria, Sepideh S.	854
Askari, Mohsen	72
Awwad, Rita	354
Azzi, Merched	7

B

Balaguer, Carlos	19, 837
Barkokebas, Beda	270
Bazik, Peter	918
Becerik-Gerber, Burcin	549
Bernold, Leonhard	868
Bertram, Torsten	778
Bock, Thomas	11, 142, 624, 762, 768, 778, 795
Bosche, Frederic	813
Bouferguène, Ahmed	262, 410
Brennan, Jane	499, 523
Bulgakov, Alexey	142, 762, 768, 778
Buzalo, Natalia	142

C

Caldas, Carlos	654
Capone, Pietro	313
Carbonari, Alessandro	506, 829
Carneiro, Joao	549
Castro-Lacouture, Daniel	536, 576
Chan, Greg	393
Chan, Wen-Shuo	593
Chang, Ting-Yu	616
Charlesraj, V. Paul C.	936
Chen, Chi-Jim	568
Chen, Hongyu	337
Chen, Hung-Ming	616
Chen, Pei-Yin	302, 821
Chen, Po-Han	561
Chen, Yit-Jin	795
Cheng, Jack	450
Cheng, Min-Yuan	661, 689
Cheng, Yuan-Yuan	593
Chi, Hung-Lin	738
Chien, Hsiao-Che	302
Chiu, Chien-Kuo	661
Chiu, Yung-Fang	661
Cho, Hunhee	474
Cho, Jehyun	224
Cho, Yong	134
Cho, Yun-Gu	95
Choi, Jinwon	210
Chong, Heap-Yih	4
Chu, Baeksuk	784
Costin, Aaron	646

D

de La Casa, Santiago	837
Martinez	
Ding, Grace	499, 523
Dissanayake, Gamini	43
Doloi, Hemanta	610, 904
Duc, Edward	238
Duc, Hiep Nguyen	544, 584
Dunston, Phillip	126

E

Eastman, Charles	434
Eggers, Kai	514
El Souki, Omar	354
Emelianov, Sergey	762
Eom, Sunghoon	790
Er, Michael	346
Ergan, Semiha	746
Evgenov, Alexey	778

F

Fang, Gu	870
Fava, Gabriele	829
Felkl, Jakob	646
Feng, Chen	163
Fiander-Mccann, Dawn	329
Florez, Laura	536
Forsythe, Perry	238, 480

G

Gandhi, Shalini	346
Gansonre, Abdoul-Aziz	377, 593
Gasparik, Jozef	918
Georgoulas, Christos	624, 795
Georgy, Maged	398, 404
Gerber, David	549
Getuli, Vito	313
Gil, Myeongsu	929
Giretti, Alberto	506
Giusti, Tommaso	313
Golovina, Olga	646
Gucunski, Nenad	50
Guenet, Emeline	813
Güttler, Jorg	795

H

Ha, Ju-Hyung	95
Ha, Quang	72, 149, 489, 584
Haas, Carl	329, 847
Hammad, Ahmed	722
Han, Changsoo	929

Han, Sanghyeok	262, 410
Hansen, Christian	514
Hanski, Sami	88
Heikkilä, Rauno	171, 667, 672, 697, 948, 953
Heilmann, Andrea	523
Hermann, Ulrich	262, 410
Heydarian, Arsalan	549
Hipel, Keith	329
Hong, Chang Hee	185
Hong, Daehie	157
Hong, Guang	584
Hossein Rashidi, Taha	466
Hou, Lei	295, 321
Hsiang, Chia-Chi	966
Hsieh, Shang-Hsien	738
Hsieh, Yo-Ming	860
Huang, Jingying	925
Huang, Ting	393
Huh, Jaemyung	157
Hwang, Nahyae	194

I

Ibrahim, Magdy	805
Ibrahim, Moheeb	398, 404
Ismail, R. M. T. Raja	149

J

Jabbour, Melanie	354
Jadidi, Hossein	706
Jang, Joonhyun	984
Jardón, Alberto	19, 837
Jeon, Gyuycob	217
Jeong, Hoyoung	942
Jiang, Jung-Yi	302

K

Kaaranka, Annemari	171, 602, 672, 697, 953
Kamat, Vineet	163
Kan, Meng-Shen	561
Kang, Julian	676
Kang, Kyung-In	474

Kang, Min-Sung	929	Lee, Seunghoon	929
Kang, Shih-Chung	738	Lee, Seungyeol	790, 978
Kang, Tae Wook	185	Lee, Sungwook	194
Kasireddy, Varun	746	Lee, Tsu-Tian	821
Kee, Seong-Hoon	50	Lee, Yongseok	929
Khabbaz, Hadi	346	Lei, Zhen	262, 410
Khoury, Hiam	368	Leinonenb, T.	948
Kim, Changmin	640	Li, Heng	393
Kim, Changwan	194, 640	Li, Jianchun	72, 176
Kim, Deajin	790	Li, Xingsheng	754
Kim, Dong-Hyun	972	Li, Yancheng	72, 176
Kim, Hongjo	309, 942	Liao, Yu-Chin	860
Kim, Hyoungkwan	309, 942	Lien, Li-Chuan	689
Kim, Inhan	202	Lim, Chang-Keun	95
Kim, Jeonghwan	984	Lim, Hyunsu	474
Kim, Jihoon	309	Lim, Jongyeon	247
Kim, Jisoo	202, 210, 217	Lim, Samsung	876, 897
Kim, Jung Yeol	654	Ling, Keck Voon	35
Kim, Kinam	309	Linner, Thomas	795
Kim, Mi Jeong	230	Liu, Dikai	43
Kim, Sangho	929	Liu, Hexu	286
Kim, Sung-Yul	230	Liu, Jang-Jeng	593
Kim, Tachoon	474	Liu, Jianjun	295, 321
Kim, Yong Min	876	Liu, Yang	676
Kitahara, Shigeo	992	Liu, Yan-Ni	689
Konig, Markus	632	Loimusalo, Mikko	88
Kotlarski, Jens	514	Louis, Joseph	126
Kubota, Shinichi	458	Lu, Ming	103, 286
Kumar, C.	960	Luo, Eric	393
Kumar, Srinath	450		
Kwon, Jun-Ho	157		
Kwon, Soon-Wook	972		
		M	
L		Maas, Ger	702
La, Hung	50	Macdonald, Jennifer	361
Lassila, Juha	88	MacGillivray, Sandra	329
Lee, Dongmin	474	Maciejowski, Jan M.	35
Lee, Ghang	224	Maghrebi, Mojtaba	680
Lee, Hyounkyu	942	Mahalingam, Ashwin	418
Lee, Hyunsoo	202, 210, 217	Makkonen, Tomi	171, 672, 697, 953
Lee, Jin-Kook	202, 210, 217	Malaska, Mikko	667
Lee, Leecho	984	Mandal, A.	960
Lee, Ming-Tsung	593	Mao, Sheng	103
Lee, Sang-Ik	217	Martínez, S.	19
Lee, Seong-Ki	624	Mathews, Vinay	418
		Matsuda, Fujio	458

McGee, Wesley	163
Metia, Santanu	584
Mine, Naoto	426
Miro, Jaime Valls	43
Moghadam, Mana	270
Monter, R.	19
Moon, Jeon Il	790, 978
Moon, Sungkon	868
Moon, Sung-Min	157
Moselhi, Osama	805
Moussavi Nadoushani, Zahra	385, 714
Sadat	

N

Na, Ok-Pin	95
Nahangi, Mohammad	847
Nanda, A.	960
Naticchia, Berardo	829
Negnevitsky, Michael	58
Nevala, Kalervo	697
Nguyen, Luan	50
Nishigaki, Shigeomi	458, 992
Nissilä, Jaakko	667

O

Oduro, Seth Daniel	584
Olanrewaju, Abdullateef	426
Ooka, Ryoza	247
Orr, Kirsten	238, 346
Ortmaier, Tobias	514
Ou, Yu-Chen	661

P

Park, Sung Jun	230
Park, Sungjae	309
Paukkeric, H.	948
Peltomaa, Irina	171, 602
Periaraj, Vivek	680
Pirinen, Tuomo	88
Pursimo, Juha	88

Q

Qin, Datong	925
Quan, Steven Jige	576

R

Rahnamayiezekavat, Payam	868
Raphael, Benny	81
Ravanshadnia, Mehdi	706
Raza, Ahmad	795
Rey, David	722
Romo, Ilkka	667
Rotimi, James	443
Ryu, Eunseo	224

S

Safa, Mahdi	329, 531
Safa, Majeed	329, 531
Saibara, Katsutoshi	458, 992
Salter, David	544
Sammut, Claude	680
Sankaran, Shankar	346
Sattineni, Anoop	361
Sayfeddine, Daher	762
Seo, Jongwon	984
Sepasgozar, Samad M.E.	876
Shahi, Arash	329
Shan, Tzu-Chi	966
Shen, Xuesong	103
Shen, Yi-Jiun	568
Shiau, Yeu-Horng	821
Shih, Shih-Yu	593
Shin, Chang-Yeob	157
Shin, Dongbin	790
Shin, Joong-Hwan	972
Shin, Minkyu	202, 210, 217
Shirowzhan, Sara	876, 897
Shou, Wenchi	321
Skibniewski, Mirosław J.	110, 337
Son, Hyojoo	194, 640
Su, Feng	890
Subhy, Ehab	404
Sun, Wei	925
Sun, Yong	754

Szczesny, Kamil	632	Watt, Sean	544
		Wei, Chia-Chen	966
		Weng, Shao-Wei	377
T		Willette, Aaron	163
Takeuchi, Masaki	426	Won, Jongsung	224
Teizer, Jochen	646	Wong, Johnny Kwok Wai	393
That, Nguyen Dinh	120, 149	Wonschik, Robert	499, 523
Thanh, Pham Tam	120	Wu, Xianguo	110, 337
Ting, Pi-Hui	302	Wu, Xiaodong	103
Tokmakov, Georgy	768	Wu, Yu-Wei	661
Tran, Tri	35		
Trieu, Toan	544	X	
Truyen, Nguyen The	731	Xiao, Yong	163
U		Y	
Usmani, Altaf	960	Yang, Kanghyeok	854
		Yang, Perry Pei-Ju	576
V		Yeh, Chun-Hsien	821
Vakiloroaya, Vahid	489	Yeh, I-Cheng	689
Varghese, Koshy	2, 418	Yeh, Ming-Feng	593
Vessalas, Kirk	499, 523	Yeung, Jamie	847
Victores, Juan Gonzalez	19, 837	Yu, Haitao	254
Viljamaa, Esa	171, 602	Yu, Yang	176
Vinh, Nguyen The	731	Yu, Ying-Hao	302, 821
Virtanen, H.	948		
Vu, The Nam	557	Z	
Vu, Tuan Anh	557	Zabel, Nael	398
Vuran, Mehmet C.	854	Zaeri, Fahimeh	443
		Zankoul, Emile	368
W		Zayed, Tarek	278
Walbridge, Scott	847	Zhang, Limao	110, 337
Waldron, Kenneth	43	Zhong, Jingbing	110, 337
Waller, Steven Travis	466, 680		
Wang, Chao	134		
Wang, Han-Hsiang	377		
Wang, Haoran	393		
Wang, Jun	321		
Wang, Kun-Chi	593		
Wang, Shih-Hsu	593		
Wang, Wei-Chih	377, 593		
Wang, Xiangyu	4, 295, 321, 738		