Day 1	Wednesday, 30th June
08:00-09:00	**Registration (f2f)**
09:00-09:30	**Opening remark (20min)** **Timo Hartmann - Workshop Organizing Chair** **& Pieter de Wilde - eg-ice chair**
09:30-09:40	**Best Paper - eg-ice 2020 Chair: Pieter de Wilde** **Automatic Clustering of Proper Working Posture** Juhyeong Ryu, Tasha McFarland, Carl Haas, and Eihab Abdel-Rahman
Session 1.1	**Life-cycle design support** **Chair: Pieter de Wilde**
09:40-09:50	**Application of AI methods for the integration of structural engineering knowledge in early planning phases** Martina Schnellenbach-Held and Daniel Steiner
09:50-10:00	**Framework proposal for automated generation of production layout scenarios: A parametric design technique to connect production planning and structural industrial building design** Julia Reisinger, Maria Antonia Zahlbruckner, Iva Kovacic, Peter Kán and Xi Wang-Sukalia
10:00-10:10	**Analysis of the early-design timber models for sound insulation analysis** Camille Chateauvieux-Hellwig, Jimmy Abualdenien and André Borrmann
10:10-10:30	**Q&A - Session 1.1**
10:30-10:50	**Break**
Session 1.2	**Life-cycle design support** **Chair: Bernd Domer**
10:50-11:00	**Component-based machine learning for predicting representative time-series of energy performance in building design** Xia Chen, Manav Mahan Singh and Philipp Geyer
11:00-11:10	**Deep learning approach for predicting pedestrian dynamics for transportation hubs in early design phases** Jan Clever, Jimmy Abualdenien and André Borrmann
11:10-11:20	**A hybrid-model time-series forecasting approach for reducing the building energy performance gap**

	Xia Chen, Tong Guo and Philipp Geyer
11:20-11:40	**Q&A - Session 1.2**
Session 1.3	**Collaboration and Delivery** **Chair: Philipp Geyer**
11:40-11:50	**Implementing Information Container for linked Document Delivery (ICDD) as a micro-service** Madhumitha Senthilvel, Jyrki Oraskari and Jakob Beetz
11:50-12:00	**An explanatory use case for the implementation of Information Container for linked Document Delivery in Common Data Environments** Janakiram Karlapudi, Prathap Valluru and Karsten Menzel
12:00-12:10	**Automatic generation of ISO 19650 compliant templates based on standard construction contracts** Thomas Bower, Alan Rawdin, Xiaofeng Zhu and Haijiang Li
12:10-12:30	**Q&A - Session 1.3**
12:30-13:30	**Lunch break(1h)**
13:30-14:30	**break**
Session 2.1	**Natural Language Processing in AEC** **Chair: Ghang Lee**
14:30-14:40	**A Framework for Intelligent Building Information Spoken Dialogue System (iBISDS)** Ning Wang, Raja R. A. Issa and Chimay J. Anumba
14:40-14:50	**A Design Recommender System: A Rules-based Approach to Exploit Natural Language Imprecision using Belief and Fuzzy Theories** Lucian-Constantin Ungureanu
14:50-15:00	**Towards the adoption of Vision Intelligence for Construction Safety: A Grounded Theory Methodology analysis of safety regulations** Numan Khan, Chansik Park, Seungwon Cho and Muhammad Khan
15:00-15:20	**Q&A - Session 2.1**

15:20-15:40	**break**
Session 2.2	**Collaboration and Delivery** **Chair: Georg Suter**
15:40-15:50	**Graph-based version control for asynchronous BIM level 3 collaboration** Sebastian Esser, Simon Vilgertshofer and André Borrmann
15:50-16:00	**Image-documentation of existing buildings using a server-based BIM Collaboration Format workflow** Oliver Schulz and Jakob Beetz
16:00-16:10	**Unlocking the full potential of Building Information Modelling by applying the principles of Industry 4.0 and Data Governance such as COBIT 5** Adrian Wildenauer and Josef Basl
16:10-16:30	**Q&A - Session 2.2**
Session 2.3	**Augmented/Virtual Reality in AEC** **Chair: Iva Kovacic**
16:30-16:40	**Concept to support the estimation of static load capacity on construction site using in-situ AR-based methods** Christian-Dominik Thiele, Tim-Jonathan Huyeng, Pascal Mosler and Uwe Rüppel
16:40-16:50	**Using eye-tracking to compare the experienced safety supervisors and novice in identifying job site hazards in a VR environment** Yewei Ouyang and Xiaowei Luo
16:50-17:00	**Virtual Reality Platform for 3D Irregular Packing Problem** Yinghui Zhao, Juhyeong Ryu, Carl Haas and Sriram Narasimhan
17:00-17:20	**Q&A - Session 2.3**

Session 2.4	**Advanced Computing in Engineering** **Chair: Wolfgang Huhnt**
17:20-17:30	**Reference Architectural Model of Buildings for Virtual City Creator** Agnieszka Mars, Ewa Grabska, Jan Bielański, Paweł Mogiła and Michał Mogiła
17:30-17:40	**Data shortage? An empirical survey on data availability and enrichment methods using machine learning for urban energy simulations** Gerald Schweiger, Johannes Exenberger, Avichal Malhotra, Thomas Schranz, Theresa Boiger, Christoph van Treeck and James O'Donnell
17:40-17:50	**End-to-End Integrated Framework in Support of Virtual Design-Engineering-Manufacturing-Construction Space Exploration** Ebrahim Eldamnhoury, Lewis Healy and Renate Fruchter
17:50-18:10	**Q&A - Session 2.4**
18:10-19:00	**eg-ice board meeting(closed)**
19:00-...	**Brewery outing (self paid)**

Day 2	Thursday, 1st July
Session 3.1	**Advanced Computing in Engineering** **Chair: Jakob Beetz**
08:55-09:05	**Data Quality in Building Productivity Assessment – the Case of Acute Care Environments** Jack Morewood, Pieter de Wilde and Matthew Bacon
09:05-09:15	**An Approach for Cross-Data Querying and Spatial Reasoning of Tunnel Alignments** Marcel Stepien, Andre Vonthron and Markus König
09:15-09:25	**Ontological reasoning in factory-BIM: An industrial case study for an automotive OEM** Jeremias Merz and Timo Hartmann

09:25-09:45	**Q&A - Session 3.1**
Session 3.2	**IFC Application Through the Life Cycle** **Chair: Christian Koch**
09:45-09:55	**IFCNet: A Benchmark Dataset for IFC Entity Classification** Christoph Emunds, Nicolas Pauen, Veronika Richter, Jérôme Frisch and Christoph van Treeck
09:55-10:05	**IFC based Framework for Generating, Modeling and Visualizing Spalling Defect Geometries** Mathias Artus, Mohamed Said Helmy Alabassy and Christian Koch
10:05-10:15	**Automatic generation of IFC models from point cloud data** Andrés Justo, Mario Soilán, Ana Sánchez-Rodríguez and Belén Riveiro
10:15-10:30	**Q&A - Session 3.2**
10:30-10:50	**break**
Session 3.3	**BIM and Engineering Ontologies** **Chair: Pieter Pauwels**
10:50-11:00	**A Proposed Ontology for Knowledge Representation in Designing Indoor Inspection Robot Systems** Leyuan Ma and Timo Hartmann
11:00-11:10	**Bidirectional coupling of Building Information Modeling and Building Simulation using ontologies** Elisabeth Eckstädt
11:10-11:20	**Building Ontology for Preventive Fire Safety** Isabelle Fitkau and Timo Hartmann
11:20-11:40	**Q&A - Session 3.3**
Session 3.4	**Advanced Computing in Engineering** **Chair: Ewa Grabska**
11:40-11:50	**Accuracy Aspects when Transforming a Boundary Representation of Solids into a Tetrahedral Space Partition** Joanna Zarah Vetter and Wolfgang Huhnt

11:50-12:00	**The influence of topology optimisation's design space—from shell to volume—on the generation of structural systems** Herm Hofmeyer, Diane Schoenmaker, Sjonnie Boonstra and Pieter Pauwels
12:00-12:10	**Qualifying spatial information for underground volumes** Kamel Adouane, Fabian Boujon and Bernd Domer
12:10-12:30	**Q&A - Session 3.4**
12:30-13:30	**Lunch break(1h)**
13:30-14:30	**Keynote:** **David Ayeni, Global Director, Digital Strategy, and Business Development Leader at DCW** ***Digital Twins in Industrial Construction Works***
Session 4.1	**Environment Capturing and Analysis** **Chair: Ian Smith**
14:30-14:40	**Building a balanced and well-rounded dataset for railway asset detection** Felix Eickeler and André Borrmann
14:40-14:50	**AI-based thermal bridge detection of building roofs on district scale using drones** Zoe Mayer, James Kahn, Yu Hou and Rebekka Volk
14:50-15:00	**Panorama-to-digital twin registration using semantic features** Yujie Wei and Burcu Akinci
15:00-15:20	**Q&A - Session 4.1**
15:20-15:40	**Break**
Session 4.2	**Evaluation and Optimization in Engineering** **Chair: Ivan Mutis**
15:40-15:50	**Feasibility Study of Urban Flood Mapping Using Traffic Signs for Route Optimization** Bahareh Alizadeh, Diya Li, Zhe Zhang and Amir Behzadan

15:50-16:00	**Developing indicators for measuring the effectiveness of visualizations applied in construction safety management using eye-tracking** Yewei Ouyang and Xiaowei Luo
16:00-16:10	**Real-time LiDAR for Monitoring Construction Worker Presence Near Hazards and in Work Areas in a Virtual Reality Environment** Emil Jacobsen and Jochen Teizer
16:10-16:30	**Q&A - Session 4.2**
Session 4.3	**Advanced Computing in Engineering** **Chair: Fernanda Leite**
16:30-16:40	**Fast Crack Detection Using Convolutional Neural Network** Jiesheng Yang, Fangzheng Lin, Yusheng Xiang, Peter Katranuschkov and Raimar Scherer
16:40-16:50	**An Integrated Computational GIS Platform for UAV-based Remote Building Façade Inspection** Kaiwen Chen, Xin Xu, Georg Reichard and Abiola Akanmu
16:50-17:00	**A Computer Vision Approach for Building Facade Component Segmentation on 3D Point Cloud Models Reconstructed by Aerial Images** Yu Hou, Zoe Mayer, Zhaoyang Li, Rebekka Volk and Lucio Soibelman
17:00-17:20	**Q&A - Session 4.3**
17:20-18:10	**eg-ice general assembly** **Chair: Philipp Geyer**
19:00-...	**BBQ (face-to-face)**

Day3	**Friday, 2nd July**
Session 5.1	**Monitoring and control algorithms in engineering** **Chair: Timo Hartmann**
08:55-09:05	**Semantic description of component locations for damage assessment** Al-Hakam Hamdan and Raimar Scherer Areas of Interest

09:05-09:15	**Deep Neural Networks for visual bridge inspections and defect visualisation in Civil Engineering** Julia Bush, Tadeo Corradi, Jelena Ninić, Georgia Thermou and John Bennetts
09:15-09:25	**Automated decision making in structural health monitoring using explainable artificial intelligence** José Joaquín Peralta Abadía, Henrieke Fritz, Georgios Dadoulis, Kosmas Dragos and Kay Smarsly
09:25-09:45	**Q&A - Session 5.1**
Session 5.2	**Capturing and Analysis of the Built Environment** **Chair: Shang-Hsien Hsieh**
09:45-09:55	**VOX2BIM - A Fast Method for Automated Point Cloud Segmentation** Jan Martens and Jörg Blankenbach
09:55-10:05	**Automated Generation of Railway Track Geometric Digital Twins (RailGDT) from Airborne LiDAR Data** M.R. Mahendrini Fernando Ariyachandra and Ioannis Brilakis
10:05-10:15	**Deriving Digital Twin Models from Point Cloud Data Using Parametric Models and Metaheuristic Algorithms** M. Saeed Mafipour, Simon Vilgertshofer and André Borrmann
10:15-10:30	**Q&A - Session 5.2**
10:30-10:50	**break**
Session 5.3	**Knowledge Representation and Reasoning** **Chair: HaiJiang LI**
10:50-11:00	**Image Captioning in Chinese for Construction Activity Scenes Understanding Using a Pre-trained Cross-modal Language Model** Yuexiong Ding and Xiaowei Luo
11:00-11:10	**Process Pattern-based Hybrid Simulation for Emission Estimation of the Construction Processes** Danh Toan Nguyen and Walter Sharmak
11:10-11:20	**Automatic image analysis of mineral construction and demolition waste (CDW) using classical machine learning methods and deep learning** Jurij Walz, Elske Linß and Carsten Könke
11:20-11:40	**Q&A - Session 5.3**

Session 5.4	**Advanced Construction and Manufacturing** **Chair: Kay Smarsly**
11:40-11:50	**An algorithmic BIM approach to advance concrete printing** Patricia Peralta Abadia and Kay Smarsly
11:50-12:00	**A methodological approach to generate robot control algorithms from 3D-Models** Nicolas Mitsch, Karsten Menzel and Adrian Schubert
12:00-12:10	**An Approach to Robot-Oriented Construction by Utilizing Digital Design Processes** Adrian Schubert, Nicolas Mitsch and Karsten Menzel
12:10-12:30	**Q&A - Session 5.4**
12:30-13:30	**Lunch break(1h)**
Session 6.1	**Life-Cycle Design Support** **Chair: André Borrmann**
13:30-13:40	**Design and implementation of an optimal sensor system as part of a Digital Twin for a rotary bending machine** Daniel Haag, Heiko Beinersdorf and Carsten Könke
13:40-13:50	**The Effects of Fracture Energy on the Interfacial Strength of Self-Healing Concrete** John Hanna
13:50-14:00	**A Performance Metric for the Evaluation of Thermal Anomaly Identification with Ill-Defined Ground Truth** Burak Kakillioglu, Yasser El Masri, Chenbin Pan, Eleanna Panagoulia, Norhan Bayomi, Kaiwen Chen, John E. Fernandez, Tarek Rakha and Senem Velipasalar
14:00-14:20	**Q&A - Session 6.1**
14:20-14:50	**Best paper award and closing (30min)** **Timo Hartmann + Philipp Geyer**