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(ICE12)

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Programme

JULY 3RD, 2012

19:00 Icebreaker

JULY 4TH, 2012

8:00 Registration

9:00 Opening: André Borrmann, Philipp Geyer, Ian Smith, Ernst Rank

9:30 *Keynote 1*: Chuck Eastman (GATech), *The Evolution of AEC Interoperability*, pp. 1

10:15–10:35 Break

Session 1 **Advanced Computing: Simulation** Chair: Timo Hartmann

10:35 Angelika Kneidl, Stephanie Huerre:
On validation of crowd simulations: A case study, pp. 5

10:50 Puyan Abolghasemzadeh, Uwe Rüppel:
Fire in the cloud – High-performance cloud computing as a service for CFD fire simulations, pp. 9

11:05 Vasco Varduhn, Ralf-Peter Mundani, Ernst Rank:
Interactive Data Exploration of Large Scale Urban Scenarios Using Mobile Devices, pp. 19

11:20 Le Zhang, Raja R. A. Issa:
BIM Cloud Computing Adoption Strategy in the AEC Industry, pp. 28

11:35–11:55 Break

Session 2 **Geometry and Topology in Design** Chair: Jakob Beetz

11:55 Georg Suter, Filip Petrushevski, Milos Sipetic:
Boolean operations on network-based space layouts, pp. 38

12:10 André Borrmann, Javier Ramos Jubierre, Yang Ji, Matthias Flurl:
Procedural Modeling: A new approach to multi-scale design in infrastructure projects, pp. 48

12:25 Christian Asche, Volker Berkhahn:
Efficient data structures for T-spline modeling, pp. 58

12:40–14:10 Lunch Break

Session 3 **BIM Query Technology** Chair: Georg Suter

- 14:10 Wiet Mazairac, Jakob Beetz:
Towards a Framework for a Domain Specific Open Query Language for Building Information Models, pp. 68
- 14:25 Christoph Langenhan, Markus Weber, Marcus Liwicki, Frank Petzold, Andreas Dengel:
Topological Query on Semantic Building Models Using Ontology and Graph Theory, pp. 76
- 14:40 Ronny Windisch, Peter Katranuschkov, Raimar J. Scherer:
A Generic Filter Framework for Consistent Generation of various BIM-based Model Views, pp. 86
- 14:55 Simon Daum, André Borrmann:
Efficient and Robust Octree Generation for Implementing Topological Queries for Building Information Models, pp. 98
- 15:10 Barbara Strug:
HMatch: A Hypergraph Matching Kernel for Design Evaluation, pp. 108

15:25–15:45 Break

Session 4 **Process Modeling and Simulation** Chair: Christian Koch

- 15:45 Tobias Rahm, Kambiz Sadri, Markus Thewes, Markus König:
Multi-method simulation of the excavation process in mechanized tunneling, pp. 118
- 16:00 Sebastian Hollermann, Jürgen Melzner, Hans-Joachim Bargstädt:
Concept for Scheduling of Bridge Construction Processes Based on Distributed Simulation, pp.128
- 16:15 Li Wang, Fernanda Leite:
Process-aware Building Information Modeling for Dynamic Design and Management of Construction Processes, pp. 137
- 16:30 Léon olde Scholtenhuis, Timo Hartmann, André Dorée:
System architecture for a virtual construction site to support utility construction project management, pp. 147
- 16:45 Tim Horenburg, Johannes Wimmer, Willibald A. Günthner, André Borrmann, Gergö Dori:
Towards collection, processing and use of actual data for the process simulation during construction, pp. 157

19:00–22:30 Boat Trip including Dinner

JULY 5TH, 2012

9:00 *Keynote 2: Alvise Simondetti (ARUP), A practical perspective on computer tools for sustainable building design, pp. 167*

9:40–10:00 Break

Session 5 **Energy and Sustainability** Chair: Pieter de Wilde

10:00 Isabell Nemeth, Manuel Lindauer:
Adaptation of a stochastic simulation model for long-term investigation of the development of the energy demand in larger building stocks, pp. 172

10:15 Tala Kasim, Haijiang Li, Yacine Rezgui:
BREEAM based dynamic sustainable building design assessment, pp. 182

10:30 Philipp Geyer, Isabel Nemeth, Werner Lang, Gebhardt Wulfhorst, Judith Schinabeck, Roland Priester:
Systems modelling considering qualities and quantities for strategies of sustainable development of a liveable urban district in Nuremberg, pp. 193

10:45 Suman Giri, Mario Berges:
A study on the feasibility of automated data labeling and training using an EMF sensor in NILM platforms, pp. 204

11:00–11:20 Break

Session 6 **Indoor / Outdoor** Chair: Ioannis Brilakis

11:20 Nan Li, Burcin Becerik-Gerber:
An Infrastructure-Free Indoor Localization Framework to Support Building Emergency Response Operations, pp. 210

11:35 Aaron Costin, Nipesh Pradhananga, Jochen Teizer:
Integration of Passive RFID Location Tracking in Building Information Models, pp. 220

11:50 Christian Koch, Matthias Neges, Markus König, Michael Abramovici:
BIM-based Augmented Reality for Facility Maintenance using Natural Markers, pp. 230

12:05 Sebastian Tuttas, Uwe Stilla:
Extraction of façades with window information from oblique view airborne laser scanning point clouds, pp. 240

12:20–13:50 Lunch Break

Session 7 **Media and Interoperability** Chair: Jochen Teizer

- 13:50 Timo Hartmann:
A replication study on the effects of media richness on task performance and user perceptions, pp. 248
- 14:05 Wadhah Hatem, Alan Kwan, John Miles:
Factors affecting Team Productivity in Face-to-Face and Computer Mediated Collaboration, pp. 257
- 14:20 Chia-Ying Lin, Chien-Cheng Chou, Ya-Mei Lin, I-Chen Wu, Hao-Wen Chang:
Apply Model-Driven Architecture to Re-conceptualize BIM for Extended Usage, pp. 268
- 14:35 Patrick Janssen, Rudi Stouffs, Andre Chasar, Stefan Boeykens, Bianca Toth: *Data transformations in custom digital workflows*, pp. 276
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14:50–15:10 Break

Session 8 **Advanced methods for structural design computing** Chair: Fernanda Leite

- 15:10 Benjamin Frempong-Mensah, Yaqub Rafiq, Pieter de Wilde:
The Potential of BIM to address some of the Inefficiencies associated with Current Structural Engineering Design Processes – A Case-Study, pp. 286
- 15:25 Herm Hofmeyer, Juan Davila Delgado:
Spatial-Structural Interaction and Strain Energy Structural Optimisation, pp. 296
- 15:40 Barbara Strug, Anna Paszyńska, Maciej Paszyński, Ewa Grabska:
Using Grammar Systems in Finite Element Method, pp. 306
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15:55–16:15 Break

Session 9 **Risk and Safety** Chair: Haijiang Li

- 16:15 Juergen Melzner, Sijie Zhang, Jochen Teizer, Sebastian Hollermann, Hans-Joachim Bargstädt:
Safety planning based on an object-oriented building model, pp. 410
- 16:30 Herve Pruvost, Alexander Benevolenskiy, Sven Schapke, Raimar Scherer:
Considering Project Risks in Reference Modeling of Construction Processes, pp. 420
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16:45–17:45 **EG-ICE General Assembly**

19:00–23:00 Conference Dinner

JULY 6TH, 2012

9:00 *Keynote 3: Andreas Niggel (SOFISTIK), Automatic generation of 3D-reinforcement models, pp.316*

9:40–10:00 Break

Session 10 **Optimization** Chair: Markus König

10:00 Barbara Strug, Ewa Grabska, Grażyna Ślusarczyk:
Genetic Operators for Hypergraph-Based Evolutionary Design, pp.318

10:15 Kamil Szczesny, Matthias Hamm, Christian Koch, Markus König:
A rank-based crossover operator for evolutionary algorithms for simulation-based optimization of construction schedules, pp.328

10:30 Alireza Ahangar-Asr, Akbar Javadi, Asaad Faramarzi:
Thermo-mechanical modelling of unsaturated soils using EPR, pp.336

10:45 Jun Shi, James Garrett, Lucio Soibelman:
A Study of Associations between Hydraulic Characteristics and Pipe Breakage in Drinking Water Distribution System, pp.341

11:00 Li Huang, Manfred Breit, Martin Mensinger:
Approach to handle architectural flexibility requirements for automated structural design proposals of steel concrete office buildings in early design phases, pp.351

11:15–11:35 Break

Session 11 **Monitoring / Data collection and interpretation** Chair: Mario Berges

- 11:35 Carlos Martinez-Ortiz, Darren Pearson, Ian Beynon, Martin Beck, Nigel Barlow, Pieter de Wilde:
Intelligent Analysis of Monitored Utility Data, pp. 361
- 11:50 Romain Pasquier, James-Alexandre Goulet, Ian Smith:
Reducing Uncertainties Regarding Remaining Lives of Structures Using Computer-aided Data Interpretation, pp. 370
- 12:05 Michael Dibley, Haijiang Li, Yacine Rezgui, Bin Wang:
Multi-Agent System for real time building monitoring, pp. 380
- 12:20 Habib Fathi, Ioannis Brilakis:
A Videogrammetric As-Built Data Collection Framework for Digital Fabrication of Sheet Metal Roof Panels, pp. 390
- 12:35 Rolands Kromanis, Prakash Kripakaran:
Support Vector Machines for Anomaly Detection from Measurement Histories, pp. 400

12:50–13:00 Closing

13:00–14:00 Lunch

Additional Paper

Fabian Gerold:
Interoperable Structural Simulation Environment with STEP-based Simulation Interface, pp. 430