

## TOPICS AND SPEAKERS

SPEAKER		TOPIC
<p><b>Thomas Bock</b>  Bockrobotics, Munich, Germany  <a href="http://www.rod.de">www.rod.de</a> <a href="mailto:bockrobotics@web.de">bockrobotics@web.de</a></p> <p><u>Short CV</u>  His professional, academic and research record involve transforming construction towards automated prefabrication, robotic on site construction and robot oriented design. His notion of robotic ambience offer socio-technical solutions for demographic challenges. He was involved in many collaborations within the first digital thesis of the faculty of architecture at University Stuttgart; studies at IIT Chicago on multipurpose high rise buildings; doctorate studies on robotic construction at the University of Tokyo; digital experience of ECLSS for NASA Tech House at University of Houston; Toyota Homes to study the TPS (Toyota Production System) in digital transformation of the construction industry; CNRS in France where he established the first European construction robotics commission in Europe in the mid 1980ies. Since 1989 he was professor for automation in construction management at the civil engineering faculty of Karlsruhe University and since 1997 was chair professor for building realization and robotics in 1997 at TU Munich. He is a member of several academies of sciences, holds various fellow-, doctor and professorships since 1990. He co/authored about 550 articles in English, French, Japanese, Russian and German and published the world wide first book series on "Construction Robotics" with Cambridge University Press since 2015.</p>		<p>KEYNOTE:  Construction robotics enabling digitalization and Construction 5.0</p>
<p><b>Kepa Iturralde</b>  Institut für Baubetriebslehre, Stuttgart, Germany  <a href="https://www.linkedin.com/in/kepa-iturralde/#">https://www.linkedin.com/in/kepa-iturralde/#</a></p> <p><u>Short CV</u>  He is professor at University of Stuttgart (Germany) and Chair of Digital Transformation in Construction. He got a Master Engineer-Architect degree at the University of the Basque Country (Spain). He got a PhD at Technische Universität München. He worked as a researcher at the University of the Basque Country, Department of Architecture, Donostia (Spain) and Research Associate at Lehrstuhl für Baurealisierung und Baurobotik Technische Universität München, Germany (since 2015). He was visitor researcher at</p>		<p>Digital solutions for design, prefabrication and robotic construction</p>

Sungkyunkwan\_University, Seoul, (Republic of Korea), and at University of Tokyo (Japan) within the AUSMIP program. He joined several EU-wide research projects, such as BERTIM H2020 project , HEPHAESTUS H2020 project ENSNARE H2020 project (since February 2021) and AMALTEA Horizon project since January 2025.

He is founding-partner at Metak Arkitektura Tailerra Bilbao, Spain, in 2007.

### Frédéric Bosché

University of Edinburgh, UK

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#### Short CV

Following a PhD in Civil Engineering at the University of Waterloo (Canada), he worked for two years as researcher in the Computer Vision Laboratory at ETH Zurich, before becoming Assistant Professor in Construction Informatics at Heriot-Watt University. In 2019, he joined the University of Edinburgh where he was first Senior Lecturer and now Reader in Construction Informatics. He teaches on construction management and informatics, and leads the CyberBuild Lab that delivers research and innovation in these areas.

Among his professional qualifications and memberships, he is/has been past President of the International Association for Automation and Robotics in Construction (IAARC); past Chair of the Modelling and Standards Committee of the European Council on Computing in Construction (EC3), Associate Editor of Automation in Construction (Elsevier), Associate Editor of the Journal of Information Technology in Construction (ITCon), Member of European Group for Intelligent Computing in Engineering (EG-ICE).



Deep-learning -based semantics extraction of secondary and MEP components of buildings

### Jochen Teizer

Technical University of Denmark, DTU

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#### Short CV

Jochen Teizer is Professor of Construction Technologies and Director of the Construction Automation and Information Technologies Laboratory in the Department of Civil and Mechanical Engineering at Technical University of Denmark (DTU), where his research seeks lean and injury-free construction work environments.

He earned a Ph.D. from the University of Texas at Austin and a Dipl.-Ing. from the Karlsruhe Institute of Technology. He has held several Visiting Professorships at Technical University of Innsbruck, Technical University of Munich, and Osaka University. He was the Vice-President for Industry Membership and Outreach and is on the Board of



Digital Twin for Construction Safety: Prevention through Design and Planning, Run-time Monitoring and Control, and Active Personalized Feedback and Learning

Directors of the International Association for Automation and Robotics in Construction (IAARC). With over 270 peer-reviewed publications in books, journals, and conference proceedings and numerous academic and construction industry teaching and research awards, he also serves on editorial boards of journals (e.g., Automation in Construction, Elsevier) and as a visionary and consultant for the architecture, engineering, construction, and facility management (AECFM) industry.

### **Borja Garcia de Soto**

NYU at Abu Dabi

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#### Short CV

Borja García de Soto is an Associate Professor of Civil and Urban Engineering at New York University Abu Dhabi (NYUAD) and a Global Network Associate Professor in the Department of Civil and Urban Engineering at the Tandon School of Engineering at New York University (NYU). He is the director of the S.M.A.R.T. Construction Research Group at NYUAD and conducts research in the areas of automation and robotics in construction, cybersecurity in the AEC industry, artificial intelligence, lean construction, and BIM.

He is an Associate Editor of Automation in Construction (Elsevier), Associate Editor of the Journal of Construction Robotics (Springer), Associate Editor of the Journal of Smart and Sustainable Built Environment (Emerald), and the General Secretary of the International Association for Automation and Robotics in Construction (IAARC). Borja has extensive experience in the industry as a structural engineer, project manager, and construction consultant. Borja received his PhD from ETH Zurich in Switzerland. He also holds an MSc in Civil Engineering with a concentration in engineering and project management from the University of California at Berkeley, an MSc in Civil Engineering with a concentration in structural design from Florida International University (FIU), and a BSc in Civil Engineering (graduated cum laude) also from FIU.



Automating the inspection of safety measures in buildings and construction sites through AI and robotics

### **Žiga Turk**

University of Ljubljana, Slovenia

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#### Short CV

Žiga Turk is a Professor in Construction Informatics at the Faculty of Civil and Geodetic Engineering at the University of Ljubljana, Slovenia. In addition to his academic career where he worked on design



Development of AI applications in construction and regulatory issues

communication, computer integrated construction and internet science, he was twice a minister in the Government of Slovenia and Secretary General of the Felipe Gonzalez's Reflection Group on the Future of Europe.

His academic interests include construction information technology, computer integrated construction, building information management (BIM), internet, Web and grid computing, design communication and philosophy of conceptual modeling. He wrote several papers on these subjects. He was partner in many EU projects since the 4<sup>th</sup> EU framework and coordinated two multi million euro ones. He held graduate and undergraduate courses in Ljubljana, Istanbul, Zagreb, Stockholm and in a pan-European study of eConstruction.

Recently, his research activities include the trends and scenarios of future global developments, particularly the role of information technology and innovation in those trends. He also studies the broader societal impacts of information technology and is active in the topic of "internet science", "future of work", "democracy and technology" and "responsible research". He is an internationally recognized public speaker, columnist and lecturer on these subjects.

#### **Berardo Naticchia**

Università Politecnica delle Marche, Ancona, Italy

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#### Short CV

Full Professor and Lecturer in Production and Management of the Built Environment.

His research interests mainly focus on: (i) Digital innovation and automation in the construction industry, with the aim of developing approaches and technologies for efficient management of the built environment. (ii) Smart technologies for building systems, with the goal of developing high-performance structures that integrate and optimize energy efficiency, durability, life-cycle performance, and occupant productivity.

He is the director of the Digital Management In Construction (DIMACO) research and service center. He chairs the scientific technical committee of CINECA within the University Real Estate Management project. An expert in safety and digital process management, he has been principal investigator in several national researches and he is founder of three university spin-offs mainly focused on supporting public administrations and the development of novel tools and technologies for the management of built environment.



A framework architecture for the development of digital twins in construction

**Francesco Spegni**

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A framework architecture for the development of digital twins in construction



**Short CV**

Francesco is assistant professor at the DICEA Department of Università Politecnica delle Marche (Ancona, Italy). He worked as teacher within the Building Engineering program (BIM for construction) and within the Computer Science and Engineering program (advanced coding; database systems; web technology; algorithms and data structures).

He got his master degree in Computer Science at “Alma Mater” Università di Bologna (Italy) and a PhD in Computer Science at Polytechnic University of Marche (Ancona, Italy). He was visiting student at University of Illinois at Urbana-Champaign (USA) in 2005 and visiting researcher at SRI (USA) in 2010 and TU Wien (Austria) in 2014-2025. He attended summer schools and higher level courses (e.g. Microsoft Learning Paths in 2016; the ETH Summer School on Software Engineering in 2011; the NATO Summer School on Formal Methods for Software Engineering in 2009).

He is specialized in designing and implementing solutions that span across cloud computing, artificial intelligence, blockchain technologies, and IoT. He worked as web developer, model checker of software systems, chief supervisor for the digitization of public institutions, smart contracts developer, database and distributed system developer for BIM-based processes in construction project management, developer of AR/MR applications, within both academic projects and private contracts.

## LABORATORY SESSIONS

SESSION no. 1	TOPIC
<p><b>Location:</b>  <b>BS&amp;T Laboratory, Università Politecnica delle Marche, Italy</b></p> <p>The Building Science and Technology Laboratory supports research activities related to the development of innovative building technologies and intelligent buildings, capable of adapting and responding to user needs in terms of comfort and safety, taking into account economic and environmental aspects throughout the life cycle.</p> <p>It is organized into four macro-areas:</p> <ol style="list-style-type: none"> <li>1. Building materials and components testing (located at Hut No. 5, Monte Dago Campus, Faculty of Engineering);</li> <li>2. Human-building interaction analysis (at DICEA, Building Architectural Engineering Division, Engineering Faculty);</li> <li>3. Full-scale experimental buildings for long-term on-site measurements;</li> <li>4. Computer center equipped with high computational power workstations and 7-node clusters.</li> </ol> <p>The human-building interaction analysis Laboratory deals with experiments for the evaluation of parameters related to the built environment and to the human behavior, carried out in physical and virtual settings. The areas of application concern the optimization of safety, comfort, well-being, work efficiency, use and management in the built environment.</p> <p>(<a href="https://dicea.univpm.it/laboratori/lab-bst/">https://dicea.univpm.it/laboratori/lab-bst/</a>)</p>	<p>Emergency management including users' behaviors: wayfinding systems and virtual reality training strategies under different risk conditions.</p>  
<p><b>List of speakers</b></p> <p><u>Gabriele Bernardini</u>, <i>Università Politecnica delle Marche, Ancona, Italy</i></p> <p><u>Enrico Quagliarini</u>, <i>Università Politecnica delle Marche, Ancona, Italy</i></p>	

SESSIONS no. 2, 3, 4	TOPICS
<p><b>Location:</b>  <b>DC3 Laboratory, Università Politecnica delle Marche, Italy</b></p> <p>The Digital Construction Capability Centre (DC3) is a full-scale laboratory and demonstration centre ('capability centre') of the most advanced digital technologies applied to the lean management of construction processes. Therefore, it is used both for research purposes and to host operators of the construction industry by involving them in situations that simulate the management of typical construction process scenarios, but with the aid of digital technologies and advanced management methods (e.g. augmented reality, "digital twin") for the benefit of</p>	<p>Applications of Digital Twins for lifecycle management of Infrastructure</p> <p>Applications of Digital Twins for Safety Management</p> <p>Applications of Digital Twins for city asset management</p>



management efficiency. Such situations can be reproduced for any of the macro-phases of the construction process.

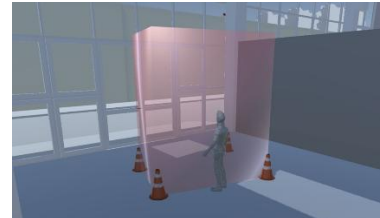
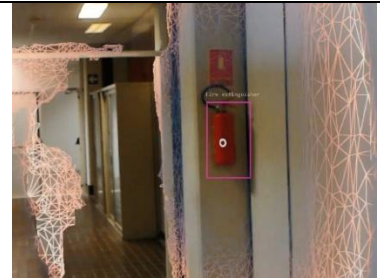
Research activities on Construction Digitalization mainly concern:

1. Digitization for workflow optimization in the execution and management phases of construction processes;
2. Digitization of the built environment and Building Information Modelling (BIM);
3. Augmented Reality” and “Mixed Reality” systems for construction;
4. Integration of drones for surveying, digitization of buildings and control of construction processes.

Research activities on the development and testing of Digital Twins for construction mainly concern:

1. Reality-mirroring through IoT and AI systems;
2. Sensor networks and other tracking systems (e.g. smart cameras) to support reality-mirroring;
3. Digital twin for project management and man-machine interaction.

(<https://dicea.univpm.it/laboratori/lab-dc3/>)



#### **List of speakers**

Leonardo Binni, *Università Politecnica delle Marche, Ancona, Italy*

Rocco Davide D'Aparo, *Università Politecnica delle Marche, Ancona, Italy*

Alessandra Corneli, *Università Politecnica delle Marche, Ancona, Italy*

Alessandro Carbonari, *Università Politecnica delle Marche, Ancona, Italy*

Massimo Vaccarini, *Università Politecnica delle Marche, Ancona, Italy*

Leonardo Messi, *Università Politecnica delle Marche, Ancona, Italy*

