

## INTERNATIONAL WORKSHOP:

# Network for Research to Industry Transfer of Robotics and Automation in Construction

The construction industry is facing several pressing global challenges such as labor shortage, rising costs, and the demand for increased efficiency. In response to the aforementioned challenges, there is a growing trend towards the integration of automation and robotics in construction. These technologies not only hold the potential to address workforce limitations but also enhance productivity, safety, and precision in various construction processes, implicating a transformative shift in the industry towards a more technologically advanced and efficient future.

However, while automation and robotics are promising solutions, the practical application (especially on construction sites) remains limited. Developed by researchers and startups, these solutions need effective dissemination and implementation strategies to foster their whole potential accordingly.

The workshop therefore explores the essential components of an ecosystem, incorporating technology, necessary R&D infrastructure, market dynamics, human factors and regulatory frameworks. With a focus on international collaboration, the workshop aims to foster a cooperative system (network) that enhances the development and appropriate application of robotics and automation, contributing to a transformative future for the construction industry. Each of the speakers represents a best practice key actor for a future value creation system around construction robots.

**Date:** Wednesday, 28<sup>th</sup> February 2024

**Time:** [Workshop] 4:00PM – 6:50PM, [Networking] 6:50PM – 8:00PM (SGT)

**Venue:** **The GEAR**, 19 Changi Business Park Crescent, Singapore 489690  
and **Zoom** (For online presentations)

Prof. Dr. Zoubair Lafhaj

Prof. Dr. Christian Schlette

Prof. Dr. Pieter Pauwels

Prof. Dr.-Ing. Thomas Bock

Dr. Aiyu Zhu

Prof. Dr.-Ing. Thomas Linner

Mr. Simon Klint Bergh

Mr. Marc Schmailzl

Dr. Soungcho Chae

Ms. Charlie Zhao

Dr. Tristan Gobin

Prof. Dr.  
Romain Mesnil

Dr. Yeoh Ker-Wei, Justin

Mr. Jonathan Ng



# PROGRAMME

## [ Session 1 ] 4PM - 5:15PM (SGT)

### Opening Remarks (5 minutes)

Prof. Quek Tong Boon, Chief Executive, National Robotics Programme

### Introduction and Vision for Future Construction (5 minutes)

Prof. Dr.-Ing. Thomas Linner, OTH Regensburg, CREDO Robotics GmbH

Vice President (Industry & Innovation Hubs), International Association for Automation and Robotics in Construction

### Importance and Role of Value Networks for Research to Industry Transfer (5 minutes)

Dr. Soungcho Chae, Chief Research Engineer, Kajima Technical Research Institute Singapore, Kajima Corporation, Japan & Singapore

### R&D Centers for Robotics & Automation in Construction: A Global Perspective (60 minutes)

- Resilient Construction 4.0, Some Practical Innovations  
Prof. Dr. Zoubair Lafhaj, Chair Holder in "Construction 4.0", President IFCL (Lean Construction) Centrale Lille, France
- Robot Navigation Using Live Semantic Data from Building Digital Twins (Online Presentation)  
Prof. Dr. Pieter Pauwels, Information Systems in the Built Environment, Department of the Built Environment, Eindhoven University of Technology, The Netherlands
- A Robotic Construction Simulation Platform for Prefabricated Structures (Online Presentation)  
Dr. Aiyu Zhu, Postdoctoral Researcher, Institute of Building Technology and Science, School of Architecture, Southeast University, China
- Generative Design and Structural Optimisation through Robotic Technology (Online Presentation)  
Prof. Dr. Romain Mesnil, Assistant Professor, Director Build'in Co-Innovation Lab, Ecole des Ponts ParisTech, France
- Utilising Robotics and AI for Building Practical Applications  
Dr. Yeoh Ker-Wei Justin, Senior Lecturer, Department of Civil and Environmental Engineering, National University of Singapore, Singapore
- Towards Human-Centered Automation and Robotics in Construction (Online Presentation)  
Mr. Marc Schmailzl, Research Associate and Ph.D. Candidate, Building Lab, Faculty of Civil Engineering, OTH Regensburg, Germany

## [ Coffee Break ] 5:15PM - 5:30PM (SGT)

## [ Session 2 ] 5:30PM - 6:50PM (SGT)

### Industry Transfer Tactics for Robotics & Automation in Construction: A Multi-Stakeholder Perspective (50 minutes)

- The Danish Industry Light House on Robotics – A Regional Investment with International Impact (Online Presentation)  
Prof. Dr.-Ing. Christian Schlette, Head of SDU Center for Large Structure Production (LSP), University of Southern Denmark, Denmark
- Empowering an Autonomous and Sustainable Future with Sensors and Robotic Solutions  
Mr. Jonathan Ng, Director Enterprise Accounts, Hexagon
- Enabling Software-Driven Robot (Re)programming to Deliver Highly Variable Product Runs with Economies of Scale (Online Presentation)  
Dr. Tristan Gobin, Co-founder and CIO of HAL Robotics, United Kingdom
- Robotic 3D Printing: A Best Practice for Successful Commercialisation of Robotic Technology for Construction  
Mr. Simon Klint Bergh, Co-founder & Head of Asia Pacific, COBOD international A/S, Denmark
- Investment Perspectives on Construction Robotics (Online Presentation)  
Ms. Charlie Zhao, Founder ExlenTec GmbH & Investment Partner of CKC Capital, Germany & China

### Q&A Session and Outlook (15 minutes)

Moderator: Prof. Dr.-Ing. Thomas Linner

### Closing Talk and Summarisation (15 minutes)

- Construction Robotics: From Vision to Realities (Online Presentation)  
Prof. Dr.-Ing. Thomas Bock, Retired Professor, Former Director of the Chair of Building Realisation and Robotics, Technical University of Munich, Germany
- Open Innovation on Construction Industry  
Mr. Riho Yoshihiko, Senior Executive Officer of Kajima Corporation, Director of Kajima Technical Research Institute, Japan