

#AIAEC2025

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Artificial Intelligence in Architecture, Engineering and Construction

AIAEC

March 19–20, 2025

HELSINKI, FINLAND & VIRTUAL

Tuesday, March 18

Get together and Exhibition

19:00

21:00

Wednesday, March 19

Conference day 1

8:30

17:00

Dinner

19:00

22:00

Thursday, March 20

Conference day 2

8:25

16:45

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Wednesday, March 19

SIRKUS

SILTASAARI

08:00 Coffee and Exhibition

08:30 Opening session

- Chair **Vesa Järvinen**, AINS Group / A-Insinöörit, Finland
- 08:30 Opening of the AI in AEC 2025 Conference
Vesa Järvinen, AINS Group / A-Insinöörit, Finland
- 08:45 **Keynote 1**
Generative AI on AEC industry
Prof. Giuseppe Carlo Marano
Chair of structural design, Politecnico de Torino, Italy
- 09:15 **Keynote 2**
Challenging the conventions of the construction industry with data & AI
Tuomas Syrjänen,
Co-Founder, Chair of the Board, AI Renewal, Futurice, Finland
- 09:45 Discussion with the keynote speakers

8:30



Prof. Giuseppe Carlo Marano

Tuomas Syrjänen

10:00 Coffee and Exhibition

10:15 Session 1 - AI Landscapes

- Chair Sergej von Bagh, BST-Arkitehdit, Finland
- 10:15 Opening of the session
- 10:20 Saudi Arabia's Vision 2030 the Leader in Artificial Intelligence in Sustainable Architecture & Urban Design
Dr. Ammar Dahlan, King Abdulaziz University, Saudi Arabia
- 10:40 Sustainable Construction Through AI-Powered Technologies for Optimised Housing Development in Nigeria
Dr. Kelechukwu Dimkpa, Rivers State University, Nigeria
- 11:00 Building AI-Ready Foundations: The Role of Regulation in AEC
Jaakko Rastas and **Vesa Putkonen**, Ministry of the Environment, Finland
- 11:20 Generative AI in Architecture, Engineering, and Construction: Emerging Business Models and Strategic Adaptation
Ivana Kildsgaard, Tengbomgruppen,
Petra Svensson Gleisner, IHOP Stockholm and **Fredrik Nystedt**, Briab, Sweden
- 11:40 AI startup business opportunities in AEC
Risto Rudanko, Aalto University, Finland

10:15

10:35

10:35 Session 2 - Smart Buildings and Cities

- Chair Davor Stjelja, Granlund, Finland
- 10:35 Opening of the session
- 10:40 Leveraging LLMs as AI Experts to Evaluate the Integration of Smart Buildings into Smart Cities
Mustafa Shahrabani, Kaunas University of Technology, Lithuania
- 11:00 AI-Driven Predictive Analytics for Optimizing MEP Systems in Smart Buildings
Enrique Galicia, AvantLeap, United States
- 11:20 An evolutionary algorithm-based model predictive control for combined electrical and thermal energy systems
Rubén Mulero, TECNALIA, Basque Research and Technology Alliance (BRTA), Spain

12:00 Lunch and Exhibition

12:55 Session 3 - AI Implementation

- Chair Simon Oster, Arcadis, Netherlands
- 12:55 Opening of the session
- 13:00 Maximizing Efficiency in AEC through AI-Driven 3D model Data Generation and Standardization
Joshua van Reij and **Amy Cai**, Arcadis, Netherlands
- 13:20 Uncertainty Quantification: how AI can help us deal with uncertainty and help solve grand challenges that face the industry and the planet
Ramaseshan Kannan, Arup, United Kingdom
- 13:40 Balancing Ease and Precision: From fast prototyping to actual implementation
Matias Hirvikoski, AINS Group / A-Insinöörit, Finland
- 14:00 Advancing Infrastructure Design: AI-Powered Automation and Insights
Dirk Münzner, BuP. Boll Beraten und Planen Ingenieurgesellschaft, Germany
- 14:20 Lets acknowledge that there is no single source of truth - and deal with it
Dr. Mads Rasmussen, QAECY AG, Denmark and **Christian Frausing**, QAECY AG, Switzerland

12:55

12:55 Session 4 - Automated Model Processing

- Chair Heikki Arvio, Ramboll, Finland
- 12:55 Opening of the session
- 13:00 Architectural Intelligence: Harnessing Deep Reinforcement Learning in Generative Design
Marina Villanueva, Jacobs, Spain
- 13:20 Leveraging Large Language Models for Automated BIM Generation: An NLP-Driven Approach
John Masataka Xianfeng Jiang, Columbia University / Kengo Kuma and Associates, United States
- 13:40 Making AI accessible to architects
Erling Storm Haaversen and **Espen Færavaag da Silva**, Hille Melbye Architects, Norway
- 14:00 Rapid sketching: Practical Applications with AI for Architecture
Harri Ahokas, ONE Architects, Finland
- 14:20 Real-time 3D asset generation in the built environment: research and use case
Asier Urueña, TECNALIA, Basque Research and Technology Alliance (BRTA), Spain
- 14:40 From old blueprints to 3D city model
Dr. Gosia Wrzesinska and **Dr. Jan-Mark Wams**, Coders Co., Netherlands

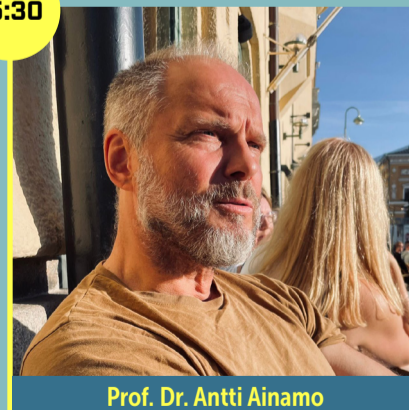
11:40 Lunch and Exhibition

14:40 Coffee and Exhibition

15:30 Keynote session

- Chair Miro Ristimäki, Skanska, Finland
- 15:30 **Keynote 3**
Data-driven business modeling in the construction industry
Prof. Dr. Antti Ainamo,
Associate Professor of Interaction Design, Computer Science, University of Tartu - Academic visitor, Civil Engineering, Aalto University, Finland
- 16:00 **C-suite Panel Discussion**
The AI adaption in the AEC industry
- Moderators **Annina Peisa**, RIL / Ramboll and **Miro Ristimäki**, Skanska, Finland
- Panelists **Sarah Calder**, AI Capability manager, Skanska, United Kingdom
Salla Eckhardt, CEO, SARA, Finland
Kari Kauniskangas, President and CEO, AINS Group / A-Insinöörit, Finland
Tuomas Syrjänen, Co-Founder, Chair of the Board, AI Renewal, Futurice, Finland
- 17:00 End of the conference day

15:30



Prof. Dr. Antti Ainamo

15:00 Coffee and Exhibition

C-SUITE PANEL DISCUSSION



Sarah Calder

Salla Eckhardt

Kari Kauniskangas

Tuomas Syrjänen

19:00 **Dinner at restaurant Meripaviljonki**

19:00

Thursday, March 20

SIRKUS

SILTASAARI

08:00 Coffee and Exhibition

08:25 Session 5 - Cyber-Physical Systems

Chair Ramaseshan Kannan, Arup, United Kingdom

08:25 Opening of the session

08:30 Keynote 4

Re-engineering Infrastructures as Cyber Physical Systems

Prof. Dr. Eleni Chatzi

Chair of Structural Mechanics & Monitoring, ETH Zürich
President, European Academy of Wind Energy

09:00 Transforming Structural Health Monitoring with AI-Driven Digital Twins: The WeStatiX SHM Platform

Nils Weissenbach, CAEmate Srl, Italy

09:20 Intelligent Predictive Maintenance for Smart Buildings Using Digital Twin and Transfer Learning

Laleh Davatgar Badie, Islamic Azad University Science and Research Branch, Iran

09:40 Digital Twin Modeling and Application of Plie Engineering in Urban Complexese

Prof. Xin Zhao, Tongji University, China

10:00 Coffee and Exhibition

10:30 Session 7 - Sustainable Development

Chair Simon Oster, Arcadis, Netherlands

10:30 Opening of the session

10:35 A Comprehensive Review of Artificial Intelligence Applications in Sustainable Buildings

Yazan Alkofahi and **Dr. Jamal Qawasmi**, King Fahd University of Petroleum and Minerals, Saudi Arabia

10:55 Leveraging Data and AI to Reduce Greenhouse Gas Emissions in the Construction Industry

Olli Kilpeläinen, Betolar, Finland

11:15 Patent's evaluation with data analysis and AI - Case Climate Change Mitigation in Architecture, Engineering and Construction

Rauli Koskinen and **Väinö Toots**, Xamk, Finland

11:35 Estimating Construction and Demolition Debris Generation in the State of Florida using Machine Learning in a Circular Economy

Dr. Kelechi Dimkpa, Rivers State University, Nigeria

11:55 Key performance indicators of undertaking housing retrofit projects using AI technologies, a business perspective

Dr. Stephen Coates, University of Salford, United Kingdom

12:15 Gladis - Universal AI-powered search engine for EPD

Alexandre Duverger, Daikon, France

12:35 Lunch and Exhibition

13:30 Session 9 - AI Agents and Workflows

Chair Joonas Helminen, Sweco, Finland

13:30 Opening of the session

13:35 Generational Intelligence - The rise of Agentic AI in AEC

Senthil Kumar, Slate Technologies, Anguilla

13:55 Enhancing compliance in AEC with agentic AI systems

Aleksei Kondratenko, **Guido Maccioci**, AECFoundry, Italy and **Houssame Eddine Hsain**, AECFoundry, Morocco

14:15 AI agent powered LCA / Cost optimization assesment

Tero Järvinen and **Kerkko Niemi**, Granlund, Finland

14:35 Civil Agent: Automating Civil Engineering with Local LLMs

Abdelali Aouada, Amberg, Switzerland

14:55 Leveraging AI to future proof Engineering Project Planning and Control

Philippe Lafferre, **Kannan Balaram** and **Nampuraja Enose**, AFRY, Finland

15:15 Designing Sustainable Building Assemblies with Knowledge Graph Workflows

Dr. Allin Groom*, **Arthur Harsuvanakit****, **Dale Zhao****, **Dr. Bon Aseniero***** and **Brian Lee***, Autodesk, *United Kingdom, **United States, ***Canada

15:15 Coffee and Exhibition

16:05 Closing session

Chair Vesa Järvinen, AINS Group / A-Insinöörit, Finland

16:05 Keynote 5

3 Pillars of AI Implementation

Stjepan Mikulić

Founder and CEO, AI in AEC

16:35 Closing Words

Vesa Järvinen, AINS Group / A-Insinöörit, Finland

16:45 End of AI in AEC 2025

8:25

8:55

10:30

11:10

13:30

16:05



Prof. Dr. Eleni Chatzi

08:55 Session 6 - Manufacturing

Chair Vesa Järvinen, AINS Group / A-Insinöörit, Finland

08:55 Opening of the session

09:00 Automatic Measurement of Concrete Consistency Using Stereovision and Machine Learning in a Mixer

Teemu Ojala and **Hassan Ahmed**, Aalto University, Finland

09:20 AI-Enhanced Process Modeling for Quality Control in Industrial Manufacturing

Ana Laura Galicia, **Isaac Ochoa**, Armo, Mexico and **Enrique Galicia**, AvantLeap, USA

09:40 Enhancing Timber Beam Manufacturing Efficiency with Woodot: An AI-Driven Robotic System for Multi-Operation Processing

Prof. Pierpaolo Ruttico, Politecnico di Milano, Italy

11:10 Session 8 - Construction

Chair Heikki Arvio, Ramboll, Finland

11:10 Opening of the session

11:15 A multi-agent platform can resolve the discontinuities in the construction process

Otto Alhava, Fira, **Osku Torro**, University of Tampere and **Tommi Arola**, Building information foundation RTS sr, Finland

11:35 Estimation of Work Activities in Construction Sites Using Ambient Sounds: A Case Study with Cloud Cameras

Takahiro Morohashi, Kajima Technical Research Institute, Japan

11:55 How good construction projects come to life?

Utilizing AI in making better construction projects

Karoliina Alatalo, AINS Group / A-Insinöörit, Finland

12:15 Lunch and Exhibition

13:30 Session 10 - Automatization and Optimization

Chair Sonja Oksanen, AINS Group / A-Insinöörit, Finland

13:30 Opening of the session

13:35 Consultations with AI - Moata Stakeholder Relationship Management

Matthew Fredericks, Mott MacDonald, United Kingdom

13:55 Automated Design of Indoor Positioning Systems using Floor Plan Images

Dr. Jyrki Savolainen, CSC - IT Center for Science, Finland

14:15 AI aided automation of tree detection for improving Urban livability towards sustainable cities

Dr. Paola Gasbarri, Italy

14:35 An Ontology-Driven Approach to Automated Fire Safety Compliance Checking in Building Information Models

Cedric Driesen, Buildwise, Belgium

14:55 Smart Solutions: Leveraging AI for Productized Bridge Engineering

Anna Ullersted Rasmussen, Ramboll, Denmark

15:05 Coffee and Exhibition



Stjepan Mikulić