Artificial Intelligence for the Future of Construction[1*]

Ivan Izonin[1,*,†], Jose M Peña[2,†] and Antonio LaTorre[3,†]

[1] *Lviv Polytechnic National University, Ukraine*
[2] *Lurtis Ltd, Oxford, United Kingdom*
[3] *Universidad Politécnica de Madrid, Spain*

Abstract

Artificial intelligence (AI) technologies are rapidly advancing, opening up new possibilities for automating, optimizing, and streamlining decision-making processes within the construction sector. With the construction industry experiencing a surge in data availability, the crucial role of AI in analyzing and deriving actionable insights has become increasingly indispensable. Researchers are actively involved in this field, and many construction companies recognize the tangible benefits of AI in improving efficiency, cutting costs, and enhancing safety measures. To foster collaboration and idea exchange among industry professionals, researchers, and innovators, we organized the inaugural International Workshop on Artificial Intelligence for the Future of Construction (AI4Construction-2024). The workshop aimed to address the growing interest in and adoption of AI solutions within the construction industry.

The 1st International Workshop on Artificial Intelligence for the Future of Construction (AI4Construction-2024) took place in Lviv, Ukraine, from April 18 to 20, 2024, concurrently with the 1st International Conference on Smart Automation & Robotics for Future Industry (SMARTINDUSTRY-2024). The workshop covered the following topics of interest: AI-based tools for architectural design; automated site planning and layout optimization using AI algorithms; generative design in construction projects; drones and their role in surveying and monitoring construction sites; AI-enabled building systems and automation; IoT integration for smart construction projects; energy-efficient construction through AI optimization; AI for real-time safety monitoring on construction sites; predictive analytics for identifying potential safety hazards; Big data analytics in the construction industry; AI for extracting insights from construction data; Data-driven decision-making in construction projects; AI applications for sustainable building design; monitoring and optimizing construction processes for environmental impact; AI-driven solutions for recycling and waste reduction in construction; augmented reality and virtual reality in construction; real-world examples of AI implementation in construction projects.

At AI4Construction-2024, over 25 researchers and practitioners from diverse countries came together to share their ideas, developments, and implementations aligned with the workshop's topics.

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✉ ivanizonin@gmail.com (I. Izonin); jm.penya@lurtis.com (J. M Peña); a.latorre@upm.es (A. LaTorre)
🆔 0000-0002-9761-0096 (I. Izonin); 0000-0002-8718-5735 (A. LaTorre)