Application of Computational Methods and artificial intelligence in the built environment

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ABSTRACT

Construction industry is one of the main sectors in the world economy and has grown significantly over the past few decades. However, it imposes a lot of impacts on the environment and humans including CO2 emissions and pollutions, waste production and disposal issues, energy and resources consumption, climate change, ambient noise and vibration generation, inappropriate indoor air quality, ecology degradation, on-site safety risks and health impacts, building materials procurements, and transportation and traffic issues.

In recent years, extensive studies have been carried out to improve the productivity and efficiency of construction sector while addressing economic, environmental, and social requirements of the communities. Computational methods, artificial intelligence, and machine learning techniques in construction and engineering management, with their benefits of modeling, predictions, pattern detection, and optimization, have become assistance to improve buildings and construction efficiency and smartness which can lead to emissions and pollutions decrease, waste and energy management, optimal use of construction materials and on-site equipment, site safety and health, and finally more smart built environment.

The main goal of the proposed mini-symposium is to bring together researchers involved in the related fields of building science, construction management and civil engineering to raise interest and present papers on the new approaches of computational methods and artificial intelligence in building and construction field to make contributions to achieving better solutions for more smart and sustainable built environment in order to set major lines of development for near future.

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