Special Issue

Advances in Data Capturing, Modeling, Simulation, and Analysis in Construction and the Built Environment

Message from the Guest Editors

Despite the rapid growth of modeling and simulation approaches, tools, and techniques in various industries, such as aerospace and manufacturing, their adoption in the context of the built environment has remained relatively modest. However, recent advances in data collection, modeling, analysis, and simulation, as well as data science have paved the way for an increasing development and application of novel methods, tools, and techniques for capturing, modeling, visualizing, and analyzing construction and the built environment. The aim of this Special Issue is to disseminate current and emerging cutting-edge research and developments in capturing, modeling, simulating, and analyzing new build and retrofitting projects, project lifecycle, as well as built heritage assets. Research that reports on beyond state-of-the-art approaches, tools, and techniques for data capturing (drones, laser and lidar scanning), modeling (scan/point cloud to building information modeling), simulating (virtual reality, augmented and mixed reality), and analyzing (big data, artificial intelligence, and machine learning) is particularly welcome.

Guest Editors

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Deadline for manuscript submissions

closed (31 July 2023)

Buildings

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an Open Access Journal by MDPI

Impact Factor 3.1
CiteScore 4.4

About the Journal

Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

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