Special Issue

Innovations in 3D Printing of Concrete

Message from the Guest Editor

Additive manufacturing has emerged as a transformative technology in the construction industry, with the 3D printing of concrete at the forefront of innovation. This Special Issue will feature the recent advances in materials, processes, design methods, and applications that are driving the next generation of concrete construction. Topics of interest include novel printable mixtures and admixtures, reinforcement strategies, process automation, design optimization, structural performance, durability, sustainability, robotics, and large-scale applications in housing and infrastructure. Contributions that bridge fundamental science with real-world deployment are particularly encouraged, along with interdisciplinary approaches that integrate robotics, artificial intelligence, and digital design. By showcasing state-of-the-art research and practical case studies, the Special Issue aims to provide a comprehensive view of how the 3D printing of concrete is reshaping the built environment and enabling more sustainable, resilient, and efficient construction practices.

Guest Editor

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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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