Special Issue

Advances in the 3D Printing of Concrete

Message from the Guest Editor

The extrusion-based 3D printing (3DCP) of concrete is rapidly gaining popularity in the construction industry. Large-scale projects investigating this method are taking place at an increasing rate across the globe, with the aim of improving upon traditional construction methods while meeting the same structural standards. Despite its many advantages, establishing 3DCP as an equivalent construction process comes with multiple challenges. These challenges range from matching the design with the method's manufacturing capabilities, maintaining consistent quality on a large scale, and ensuring structural reliability and compatibility with other materials. Furthermore, the sustainability/durability of the material and the (possible) integration of circularity in the design process are becoming increasingly important.

Guest Editor

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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.

Editor-in-Chief

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