Special Issue

Artificial Intelligence in the Design and Innovation of High-Performance Concrete Materials

Message from the Guest Editors

This Special Issue focuses on the cutting-edge application of AI in the design and development of high-performance concrete materials, aiming to explore how AI, through intelligent algorithms and data analysis, can enhance the performance and sustainability of concrete materials. AI technologies such as machine learning, deep learning, and optimization algorithms enable researchers to predict material performance more accurately, accelerate the design of novel concrete formulations, and achieve customized, intelligent production. Furthermore, AI offers innovative solutions for quality control during the concrete production process, optimizing waste material utilization, and conducting lifecycle analysis.

The suggested themes for the Special Issue are as follows:

AI-driven concrete mix design optimization;
Intelligent performance prediction and modeling of concrete materials;
Quality control and process optimization in concrete production using AI;
AI applications in concrete waste management and recycling;
AI in durability analysis of concrete materials;
Intelligent and customized concrete material design.

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Deadline for manuscript submissions

20 June 2026

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/237906

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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