Machine Learning, Health Monitoring, and Numerical Simulation of Civil Engineering Materials

Message from the Guest Editors

This Special Issue is centered on the interdisciplinary domain of sustainable operation and maintenance for intelligent transportation systems. In the realm of intelligent perception, this study leverages the integration of multiple traffic information sources and delves into the analysis of vehicle–road interaction mechanisms. Regarding digital technology applications, a Building Information Modeling (BIM)-based digital operation and maintenance platform for intelligent transportation infrastructure has been developed. In the area of intelligent construction technology, this research emphasizes the optimization of asphalt pavement material mixtures and the precise control of construction process parameters. By integrating cutting-edge information technologies, including intelligent perception, digital twins, and artificial intelligence, with traditional civil engineering practices, this research system propels the development of intelligent infrastructure towards the realm of "self-adaptive perception, self-decision-making, and self-optimization".

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Deadline for manuscript submissions

20 December 2025

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/journal/
materials

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