

Special Issue

Machine Learning Applications for Sustainable and Smart Manufacturing Development

Message from the Guest Editors

Sustainable and smart manufacturing increasingly relies on data-driven decision-making to address global challenges. Machine Learning (ML) provides powerful tools to model complex systems, optimize natural resources consumption, and minimize environmental impact generation. Its applications include manufacturing operations, Life Cycle Assessment (LCA), and logistics, offering transformative opportunities to enhance sustainability and competitiveness across industries. This Special Issue aims to gather cutting-edge research on how ML can accelerate sustainable manufacturing development. Specific emphasis will be given to the following: (i) optimizing sustainability at the operations level, including energy, water, chemical and material consumption optimization; (ii) advancing the state of the art in LCA through data-driven methods, such as surrogate modeling and uncertainty reduction; and (iii) optimizing logistics and supply chains for improved resilience and reduced environmental footprint. This topic directly aligns with *Sustainability's* scope, fostering interdisciplinary dialogue between engineering, environmental science, and data analytics.

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Message from the Editor-in-Chief

I encourage you to contribute a research or comprehensive review article for consideration for publication in Sustainability, an international open access journal which provides an advanced forum for research findings in areas related to sustainability and sustainable development. The journal publishes original research articles, reviews, conference proceedings (peer reviewed full articles) and communications. I am confident you will find the journal contributes to enhancing understanding of sustainability and fostering initiatives and applications of sustainability-based measures and activities.

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