Special Issue

Applied Machine Learning in Industry 4.0

Message from the Guest Editors

The Fourth Industrial Revolution is transforming decision-making in data-rich domains through advanced machine learning (ML) and foundation models. This Special Issue explores domainconstrained intelligence—systems that integrate domain-specific knowledge (e.g., ontologies, rules) with adaptive learning. Innovations include domain-adapted transformers, vertical decision engines, multimodal RAG systems combining structured and unstructured data, and self-optimizing frameworks using real-time feedback. We highlight human-Al co-reasoning, where large language models (LLMs) operate within domain rule constraints. Submissions should validate knowledge integration, assess expert input, and address challenges such as generalization vs. specificity, multimodal semantic alignment, and cognitive workflow optimization. We seek reproducible case studies in areas like LLM-based threat simulation. compliance reasoning, and multimodal decision support. Desired outcomes include auditable decisions, causal reasoning, and privacy-preserving learning. This collection aims to advance trustworthy, domaininformed decision ecosystems.

Guest Editors

Dr. Xiaomin Zhu

College of Systems Engineering, National University of Defense Technology, Changsha 410073, China

Prof. Dr. Zhun Fan

Department of Electrical Engineering, College of Engineering, Shantou University, Shantou, China

Deadline for manuscript submissions

30 November 2025



Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5 CiteScore 5.5



mdpi.com/si/240586

Applied Sciences Editorial Office MDPI, Grosspeteranlage 5 4052 Basel, Switzerland Tel: +41 61 683 77 34 applsci@mdpi.com

mdpi.com/journal/applsci





Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5 CiteScore 5.5



About the Journal

Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo

Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), Ei Compendex, Inspec, CAPlus / SciFinder, and other databases.

Journal Rank:

JCR - Q2 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)

