

Special Issue

Mathematical Models and Artificial Intelligence Methods for Digital Twins in Science, Engineering and Medicine

Message from the Guest Editor

Mathematical models are widely used in science, engineering, and medicine. These models often contain unknown parameters determined through **model calibration** using observational data, enabling accurate predictions. Advancements in sensors, telecommunications, and computing have led to **digital twin technology**, an enhanced form of mathematical modeling. Key features include:

- **Dynamic interaction** with a physical counterpart, integrating real-time data.
- **Uniqueness**, as each twin corresponds to a specific entity (e.g., an individual patient).
- **Predictive capabilities** for decision-making in experiments or treatments.

Originally from aerospace engineering and robotics, digital twins now apply broadly:

- **Science:** Climate change studies.
- **Engineering:** Logistics, manufacturing, and predictive maintenance.
- **Medicine:** Precision medicine for tailored treatments.

This Special Issue welcomes papers on mathematical models and AI-driven digital twin applications, especially those focusing on specific use cases.

Guest Editor

Prof. Dr. Francesco Zirilli

Dipartimento di Matematica "G. Castelnuovo", Università di Roma "La Sapienza", 00185 Roma, Italy

Deadline for manuscript submissions

20 June 2026



Applied Sciences

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.5



mdpi.com/si/232716

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

mdpi.com/journal/

appls





Applied Sciences

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.5



[mdpi.com/journal/
applsci](https://mdpi.com/journal/applsci)



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, Embase, CAPIus / SciFinder, and other databases.

Journal Rank:

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