

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

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Deadline for manuscript submissions

20 September 2025



Applied Sciences

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.5



mdpi.com/si/232716

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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.

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