

Special Issue

Fractional-Order Dynamics in AI: Neural Networks and Applications

Message from the Guest Editor

This Special Issue aims to explore the integration of fractional-order dynamics within the realm of AI, with a particular focus on their applications in neural networks and other machine learning paradigms. We invite contributions that examine the theoretical foundations of fractional calculus in AI, along with its practical applications in areas such as optimization, signal processing, autonomous systems, and natural language processing. From enhancing the learning efficiency of neural networks to improving the modelling of chaotic or time-dependent systems, fractional-order dynamics present unique opportunities for advancing AI technologies. We welcome original research articles, reviews, and case studies addressing the following topics:

- The development and application of fractional-order neural networks;
- AI-driven optimization using fractional-order models;
- Fractional calculus for memory-based learning systems;
- Applications of fractional-order dynamics in signal processing and data analysis;
- Enhancing deep learning models with fractional-order frameworks;
- Fractional-order models for autonomous and control systems

Guest Editor

Prof. Dr. Eva H. Dulf

Faculty of Automation and Computer Science, Department of Automation, Technical University of Cluj-Napoca, Memorandumului 28, 400014 Cluj-Napoca, Romania

Deadline for manuscript submissions

20 August 2026



Fractal and Fractional

an Open Access Journal
by MDPI

Impact Factor 3.3
CiteScore 6.0



mdpi.com/si/256772

Fractal and Fractional
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
fractalfract@mdpi.com

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About the Journal

Message from the Editor-in-Chief

Fractal and Fractional (*Fractal Fract.*) is a scholarly online journal which provides a forum for discussion on new original models and methods in fractals and fractional calculus both from theory and applications. It is a peer-reviewed, open access journal that publishes high quality original research articles, review papers and short communications.

Editor-in-Chief

Prof. Dr. Carlo Cattani

Engineering School (DEIM), University of Tuscia, Largo dell'Università,
01100 Viterbo, Italy

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