Mathematics and Deep Learning

Guest Editor:

Dr. Xiaofeng Liu
Harvard Medical School, Harvard University, Boston, MA 02115, USA

Deadline for manuscript submissions:
closed (31 May 2024)

Message from the Guest Editor

Deep Learning (DL) is a fast-growing area with a potentially enormous and transformative impact. However, alongside this explosive growth, the efficiency and limitations of deep learning raise profound questions in statistics, probability, optimization, harmonic analysis, geometry, and scientific computing. The underlying mathematics remain mostly not understood, limiting the robustness and validation of applications in critical domains such as autonomous driving, medicine, or hard sciences.

To unlock the next generation of DL, it is important to address both the theoretical development for explainable DL as well as the algorithmic development for trustworthy DL. These will then be linked to the development of DL in a number of key application areas, including image processing, partial differential equations, and AI for science problems.

The main aim of this Special Issue is an interlocked set of theory, modeling, data, and computation. We seek original contributions that discuss the mathematical foundations of the success of recent DL frameworks or highlight emerging applications in mathematics in deep learning.

Special Issue

Editor-in-Chief

Prof. Dr. Francisco Chiclana
School of Computer Science and Informatics, De Montfort University, The Gateway, Leicester LE1 9BH, UK

Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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), RePEc, and other databases.
Journal Rank: JCR - Q1 (Mathematics) / CiteScore - Q1 (General Mathematics)

Contact Us