Special Issue

Advances in Deep Learning, Computer Vision, and Engineering Applications

Message from the Guest Editors

As engineering systems and mathematical models grow increasingly complex, the demand for precise algorithms and efficient computational methods has never been higher. This Special Issue aims to showcase innovative mathematical and computational approaches in areas such as expressive power of deep neural networks, optimal training of deep learning networks, efficient parallel computation with GPUs, compression, quantization and interpretation of deep learning models, 3D reconstruction from 2D images, structural health monitoring, data-driven scientific simulation, and physics-informed neural networks. These areas, where deep learning and computer vision intersect with advanced mathematical modeling, are essential for advancing theoretical research and practical implementations in machine learning design and engineering. We particularly encourage contributions that introduce novel mathematical theories or advanced machine learning techniques and demonstrate their efficacy in addressing real-world engineering challenges, thereby bridging the gap between mathematical concepts and their practical engineering applications.

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Deadline for manuscript submissions

31 March 2026

Mathematics

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 4.6

mdpi.com/si/216746

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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.

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