Special Issue

Mathematics Theory and Mathematical Methods for Deep Generative Artificial Intelligence

Message from the Guest Editor

The field of deep generative artificial intelligence has matured considerably, offering a reliable vehicle for sensing and understanding knowledge underlying a large number of datasets, empirically providing decision-making capabilities. Unfortunately, it faces challenges in terms of the correctness and rationality of formal description and the theoretical verification of methods and learning procedures. In contrast, we believe that mathematics theory and mathematical methods can provide formal description for the neural network construction and learning processing and accurately discuss the generalization capabilities by parameterizing the generative model and the whole training and test procedures, entailing the resolution of technical challenges for deep generative artificial intelligence. There are numerous hotspot research directions in mathematics theory and mathematical methods for deep generative artificial intelligence. This Special Issue aims to push the sharing and discussion of recent progress and future trends in the collaborative development of mathematics theory and mathematical methods on deep generative artificial intelligence.

Guest Editor

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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.

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