Special Issue

Implementation and Performance of Artificial Intelligence Systems

Message from the Guest Editors

The universal popularity and exploding energy consumption of large-scale artificial intelligence models such as LLMs pose a potentially insoluble problem to our societies. The proliferation of Large Language Models (LLMs) has marked a paradigm shift in artificial intelligence. However, their immense computational and memory requirements present a significant barrier to their widespread deployment. Research into model compression and optimization has become a critical field of study. In this Special Issue, we invite researchers and practitioners to submit their work on the measurement, modeling and optimization of the energy costs for ML/AI training and inference. Predicting computation time is part of predicting the energy cost of a given computation. Work on parallel-distributed performance modeling is thus also welcome if it is applied to general AI or more specifically very large models.

- performance of AI and ML systems;
- embedded AI inference;
- energy consumption;
- green-IT;
- measuring, predicting and optimizing;
- quantization, algorithm complexity;
- static analysis and cost models;
- implementation and performance of artificial intelligence systems.

Guest Editors

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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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