Special Issue

Artificial Intelligence, Algorithms, and Databases: Innovations and Cross-Disciplinary Impact

Message from the Guest Editors

Data-driven intelligent learning algorithms and deep learning models leverage information from databases, including time-series data, to solve optimization problems in industrial engineering and design. These approaches, utilizing metaheuristic algorithms and deep models, are widely applied in 5G communications, wireless sensor networks, scheduling, and logistics to enhance efficiency. These methods include bio-inspired algorithms, evolutionary computation, swarm intelligence, and deep learning models such as CNNs, RNNs, LSTMs, GANs, and Transformers. Unlike traditional optimization techniques, they do not require functions to be continuous or differentiable—only an evaluable objective or loss function. This flexibility allows them to address complex challenges like optimizing network infrastructure, managing sensor networks, refining transit scheduling, and streamlining logistics. No single solution works universally, but data-driven AI approaches, combined with expert knowledge, offer powerful tools for tackling real-world problems.

Guest Editors

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