Special Issue

Applications of Evolutionary Computation to Machine Learning and Data Mining

Message from the Guest Editors

The potential interactions between evolutionary computation and machine learning are manifold and are further advanced by recent developments in the areas of human-centered AI as well as interpretable and explainable AI. Application perspectives often arise in but are not limited to manufacturing, logistics and product design. In terms of applications, there are strong connections to industrial AI, and in terms of methods and algorithms, there is a close relationship with predictive and prescriptive analytics. In the data-based generation of surrogate models, as often practiced in simulation-based optimization, evolutionary algorithms can be used both on the optimization side and on the machine-learning side. Further examples in this environment are the topology optimization of neural networks with genetic algorithms or the anticipation of dynamic systems' behavior in optimization by means of machine learning.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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