

# WHEN EVOLUTIONARY COMPUTATION MEETS DATA MINING

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Many of the tasks carried out in data mining and machine learning, such as feature subset selection, associate rule mining, and model building, can be transformed as optimization problems. Thus it is very natural that Evolutionary Computation (EC), has been widely applied to these tasks in the fields of data mining (DM) and machine learning (ML), as an optimization technique. On the other hand, EC is a class of population--based iterative algorithms, which generate abundant data about the search space, problem feature and population information during the optimization process. Therefore, the data mining and machine learning techniques can also be used to analyze these data for improving the performance of EC. A lot of successful applications have been reported, including the creation of new optimization paradigm such as Estimation of Distribution Algorithm, the adaptation of parameters or operators in an algorithm, mining the external archive for promising search regions, and so on.

However, there remain many open issues and opportunities that are continually emerging as intriguing challenges for bridging the gaps between EC and DM. The aim of this special session is to serve as a forum for scientists in this field to exchange the latest advantages in theories, technologies, and practice.

## Topics

- EC enhanced by Data Mining and Machine Learning Concepts and/or Framework
- Data Mining and Machine Learning Based on EC techniques
- Machine Learning Enhanced and/or Model-based Multi- and/or Many-objective Optimization
- Data Mining and Machine Learning Enhanced Constrained Optimization
- Data Mining and Machine Learning Enhanced Memetic Computation or Local Search
- Data Mining and Machine Learning Enhanced EC for Combinatorial Optimization

- Data Mining and Machine Learning Enhanced EC for Large-scale Optimization
- Data Mining and Machine Learning Enhanced EC for Dynamic Optimization
- Association Rule Mining Based on Multi-Objective Optimization
- Knowledge Discovery in Data Mining via Evolutionary Algorithm
- Genetic Programming in Data Mining
- Multi-Agent Data Mining using Evolutionary Computation
- Medical Data Mining with Evolutionary Computation
- Evolutionary Computation in Intelligent Network Management
- Evolutionary Clustering in Noisy Data Sets
- Big Data Projects with Evolutionary Computation
- Deep Learning with Evolutionary Computation
- Real World Applications