Symbolic Methods of Machine Learning in Knowledge Discovery and Explainable Artificial Intelligence

Guest Editor:

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Deadline for manuscript submissions:
30 September 2022

Message from the Guest Editor

Symbolic methods, also called interpretable or white-box methods, were one of the first methods developed within the machine learning area. These methods are still being developed and they find practical applications particularly in knowledge-discovery tasks. In predictive analytics complex approaches (complex AI/ML models) such as boosting, bagging and deep learning usually achieve better results than white-box methods. However, the explanation of a decision-making process of complex AI/ML models is difficult and, without some additional assumptions, often impossible. For this reason, such models are called black-boxes. The dynamic growth of XAI (Explainable Artificial Intelligence) has been recently stimulated by the necessity to explain decisions made by complex AI/ML systems…

This Special Issue focuses on new methods of induction of interpretable AI/ML models in data mining and knowledge discovery. The methods for concept learning, contrast set mining, action mining, regression and censored data analysis are welcome. The Special Issue covers also all proposals related to white-box based XAI dedicated to global explanation of decisions made by the complex AI/ML models.

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