Special Issue

Automation in Algorithm Design: From Machine Learning to Optimization

Message from the Guest Editor

Automation is a widely used strategy to eliminate or limit human assistance in manufacturing. The underlying motivation behind automation is to reduce the effort required to achieve given design, planning, and control tasks with high accuracy or success. In addition to the popularity of automation in manufacturing, it has been referred to very frequently in algorithm design. In that domain, from one aspect, the idea is to automate the process of selecting the right algorithm for a given problem (~ instance). When there is already a (parametric) algorithm, the goal is to automatically configure it. If there is no useful algorithm at all, or the idea is to have your own algorithm, the strategy is to generate one in an automated way. Machine learning and optimization communities have been investigating those strategies from different perspectives with distinct research goals. The aim of this Special Issue is to offer a common ground for those two communities to share their views on automation in algorithm design while reporting recent developments in this field.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

Algorithms are the very core of Computer Science. The whole area has been considered from quite different perspectives, having led to the development of many sub-communities: Complexity theory (limitations), approximation or parameterized algorithms (types of problems), geometric algorithms (subject area), metaheuristics, algorithm engineering, medical imaging (applications), indicates the range of perspectives. Our journal welcomes submissions written from any of these perspectives, so that it may become a forum for exchange of ideas between the corresponding scientific subcommunities.

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