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Boolean satisfiability (SAT) and related solver competitions organized during the last two decades have been a stimulating force to improve SAT solvers and related technologies. These competitions have encouraged the development of novel algorithms and optimized implementation-level techniques and data structures to increase the practical performance and robustness of solvers. The competition benchmark suites are commonly used by the research community as the standard test set to evaluate progress. Additionally, the competitions provide large amounts of openly available data on solver performance on a large spectrum of benchmark families that encode important real and artificial combinatorial problems. Overall, much more can be learned from such solver competitions than merely the ranking of the participating tools.

For this special issue, we invited organizers as well as participants of SAT-related competitions and comparative events to report on their contributions. This includes the event organization itself as well as the description of solver techniques and thorough analysis and insights into the data produced by the competitions.

In a two-stage reviewing process, we selected ten papers to be included in this special issue. In each of the two reviewing stages, each contribution was reviewed by at least three independent referees. This special issue contains the reports of three different competitions: the SAT 2018 Competition, the MaxSAT Competition 2018, as well as the SMT 2018 Competition. All of these competitions were part of the FLoC Olympic Games, the second edition of an event that happens every four years and which provides a common platform to very heterogeneous competitions. The other seven papers describe competition participants in detail and document solvers and preprocessors for MaxSAT, QBF, as well as DQBF. We thank all the contributors of the papers for publishing their competition reports and their work on competitive tools in this special issue.

Last but not least, we want to express our deepest gratitude to the referees who supported us in the selection of the content of this special issue by providing careful and timely reports.

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