



## Editorial

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Dear readers,

I very much appreciate that there is again a hype concerning AI. It definitely reminds me of the AI hype in the eighties, which had a certain share in exciting me (permanently) for AI. I hope the current hype will benefit AI as a science as well as the AI researchers. I also hope that AI will really help in facing all the upcoming societal challenges: On the one side in providing knowledge important for our society, on the other side in judging which AI application should be done, and which not.

Meanwhile I have been a member of the editorial board of this journal for more than 16 years. In this time I could enjoy the relationships to all the respective other members of the editorial board as well as the collaboration within the editorial team.

I think our journal still is an important instrument for our community. Therefore, I would like to invite you to further support it with your contributions—be it technical contributions, research projects, discussions, thesis abstracts, AI market contributions, conference reports, and/or book reviews—and/or by acting as a reviewer and/or a guest editor.

My now former co-editors including Daniel Sonntag, who has taken over the responsibility as managing editor, I wish all the best and God's blessing for their work within the (partially) new editorial team including the colleagues from Springer and beyond.

Best regards  
Klaus-Dieter Althoff.

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## 1 Forthcoming Special Topics

### 1.1 Answer Set Programming Unleashed

Answer Set Programming (ASP) has become a popular paradigm for Knowledge Representation and Reasoning (KRR), in particular, when it comes to solving knowledge-intense combinatorial (optimization) problems. The growing popularity of ASP in research and application domains rests upon the following pillars. First, ASP builds upon a simple yet rich modelling language with clear semantics that offers, for instance, cardinality and weight constraints as well as means to express multi-objective optimization functions. Second, all these constructs are well supported by highly performant solving technology leading to seamless support of such constraints along with sophisticated optimization algorithms. Finally, a primary asset of ASP is its versatility, arguably elicited by its roots in KRR and AI: ASP offers complex reasoning modes for enumerating, intersecting, or unioning solutions, as well as combinations thereof, e.g., intersecting all optimal solutions.

ASP can be looked at from different perspectives. For one, it can be seen as the computational embodiment of non-monotonic reasoning. Similarly, it can be regarded as an extension of propositional logic and its solving machinery with closed world reasoning. For another, it can be viewed as an extension of database systems with possibly recursive rules. And although its original semantics was proposed to capture logic programs, its logical foundations have meanwhile been traced back to constructive logics.

This particular combination of different paradigms along with the aforementioned versatility made ASP a successful tool in AI research with a wide range of applications in academia as well as industry. Starting with an introduction to the essentials of ASP and its logical foundations, the special issue includes several articles on salient application areas of ASP. This is accompanied with interviews reflecting its upbringing from the early days of AI to modern off-the-shelf ASP engines. And last but not least, the special issue features several reports from the field.

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