Call for Papers

Journal of Symbolic Computation

Special Issue on the Interaction of Symbolic Computation and Machine Learning in Artificial Intelligence

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Scope

Symbolic computation (SC) aims at providing algorithmic solutions to problems dealing with symbolic objects such as terms, formulas, programs, representations of algebraic objects, etc. Algorithms and methods developed for the major subfields of SC (computer algebra, computational logic, automatic programming) have found successful applications in various areas.

From the beginning, SC was also considered a major approach to "artificial intelligence", since the problems solved by SC, typically, are problems that were considered hard for "human intelligence" (like symbolic integration, theorem proving, SAT/SMT solving, program verification, hardware verification, etc.).

Meanwhile, recent advances in artificial intelligence methods have provided new exciting opportunities in science and industry, being more and more integrated into most aspects of life. Machine learning (ML) methods, developed in parallel to symbolic methods for solving hard "artificial intelligence" problems, achieved spectacular results in numerous applications in recent years.

This special issue is dedicated to the interaction of symbolic computation and machine learning methods seen as the two major approaches to "artificial intelligence". We expect dramatic advances from a much closer interaction of the SC and the ML approaches to artificial intelligence. This interplay is, in fact, essential in the current scenario where the economy and society demand the development of complex, data-intensive, trustable, and high-performant computational systems that accompany humans in more and more facets of their daily life.

The special issue is organized as a follow-up of the 24th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, SYNASC 2022. Participants of the symposium, as well as other authors, are invited to submit contributions. We welcome submissions describing the interaction of SC and ML methods, techniques, and tools, and their applications in AI.

Submission

This special issue welcomes high-quality contributions, including papers with original research results as well as review articles. They will be peer-reviewed using the standard refereeing procedure of the Journal of Symbolic Computation.

Submitted papers must be in English, prepared in LaTeX according to the guidelines of the journal:

https://www.elsevier.com/journals/journal-of-symbolic-computation/0747-7171/guide-for-authors

PDF versions of manuscripts must be submitted via Journal of Symbolic Computation online submission system (please select the article type "VSI: SYNASC 2022" when submitting your manuscript online):

https://www.editorialmanager.com/jsco/default2.aspx.

Submission deadline: **August 14, 2023.**

Guest Editors

- Bruno Buchberger (RISC, Johannes Kepler University Linz, Austria)
- Temur Kutsia (RISC, Johannes Kepler University Linz, Austria)
- Mircea Marin (West University of Timişoara, Romania)
- Wolfgang Windsteiger (RISC, Johannes Kepler University Linz, Austria)