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Special Issue on the 32nd International Symposium on Logic-based Program Synthesis and Transformation: LOPSTR 2022

Preface

The International Symposium on Logic-based Program Synthesis and Transformation LOPSTR annually gathers researchers interested in logic-based program development. The LOPSTR series stimulates and promotes international research and collaboration in all aspects of the field, covering all stages of the software life cycle and addressing issues related to both programming-in-the-small and programming-in-the-large. This special issue contains the revised and extended versions of selected papers presented at the 32nd International Symposium on Logic-Based Program Synthesis and Transformation LOPSTR 2022 which was hosted by the Tbilisi State University, Georgia, from September 6 to September 8, 2022.

The authors of selected papers were invited to submit an improved, extended version to this special issue of Fundamenta Informaticae. The papers they submitted went through a careful review by qualified international referees, to whom we express our deep gratitude.

The articles in this special issue are examples of how logical analysis provides the basis for approaches to implementing practical tools for specifying and verifying programme properties:

- Thaïs Baudon, Carsten Fuhs, and Laure Gonnord. *On Complexity Bounds and Confluence of Parallel Term Rewriting*.
  This paper revisits parallel-innermost term rewriting as a model of parallel computation on inductive data structures and provides a corresponding notion of runtime complexity parametric in the size of the start term. Automatic techniques to derive both upper and lower bounds on parallel complexity of rewriting are proposed, and the applicability and precision of the method are demonstrated.

- Raúl Gutiérrez, Salvador Lucas, and Miguel Vítores. *Proving Confluence in the Confluence Framework with CONFident*.
  This paper describes the *Confluence Framework*, a novel framework for proving or disproving confluence using a divide-and-conquer modular strategy, and its implementation in the tool

CONFident. The approach handles Generalized Term Rewriting Systems, where: (i) only selected arguments of function symbols can be rewritten, and (ii) a rather general class of conditional rules can be used.

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