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## Preface

This volume contains the papers presented at IPS 2021, the 9th Italian Workshop on Planning and Scheduling (<http://ips2021.istc.cnr.it>) and at RCRA 2021, the 28th International Workshop on “Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion”, held within the virtual XX Conference of the Italian Association for Artificial Intelligence (AI\*IA 2021), on November 29 and November 30, 2021.

The aim of the IPS series of workshop is to bring together researchers interested in different aspects of planning and scheduling, and to introduce new researchers to the community. Although the primary target of IPS workshops is the Italian community of planning and scheduling, the aim is also to attract an international gathering, fostering contributions and participation from around the world. In particular, this year, 9 papers were accepted for presentation at the workshop, involving different authors from Italy and other European countries. Moreover, this year we also had an invited talk by David E. Smith, a leader in several aspects of AI Planning, from theory to their application into the Space sector.

The IPS accepted papers mainly focus on conformant planning [1], generation of symbolic knowledge [2], multi-agent planning [3], numeric and temporal planning [4, 5], online learning and planning [6], plan simulation [7] and applications of planning and scheduling [8].

The scope of the RCRA workshop is, instead, fostering the cross-fertilization of ideas stemming from different areas, proposing benchmarks for new challenging problems, comparing models and algorithms from an experimental viewpoint, and, in general, comparing different approaches with respect to efficiency, problem modeling, and ease of development. In particular, this year 8 papers were accepted for presentation at the workshop, involving different authors from Italy and other European countries.

The RCRA 2021 accepted papers mainly focused on applications of model checking [9, 10], explainability [11], constraint programming [12], applications of planning and scheduling [13, 14], online learning and planning [6], and heuristics for planning [15].

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