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Preface

Special issue on SR 2013

The present volume collects seven original research papers that were invited upon selection from the best scientific contributions and invited talks presented at the First International Workshop on Strategic Reasoning (SR 2013), held in Rome (Italy) from March 16th to 17th, 2013.

The SR workshop series aims to bring together researchers working on different aspects of strategic reasoning in computer science, both from a theoretical and a practical point of view. Strategic reasoning is one of the most active research area in multi-agent system domain. The literature in this field is extensive and provides a plethora of logics for modeling strategic ability. Theoretical results are now being used in many exciting domains, including software tools for information system security, robot teams with sophisticated adaptive strategies, and automatic players capable of beating expert human adversary, just to cite a few. All these examples share the challenge of developing novel theories and tools for agent-based reasoning that take into account the likely behavior of adversaries.

This special issue comprises three invited-talk articles plus four extended and improved versions of four contributed papers selected among the thirteen accepted for presentation at SR 2013. All papers were subject to an additional round of thorough review, involving additional reviewers that did not participated in the original selection process. Every article has been reviewed by an average of three reviewers that carefully checked the submitted manuscripts and offered constructive comments for improving them. The result is a high-quality collection spanning over the whole range of topics hosted by the conference.

Specifically, the invited-talk paper by Krishnendu Chatterjee, co-authored with Rasmus Ibsen-Jensen, considers two-player concurrent mean-payoff games and studies the problems of determining whether a player has a strategy to satisfy the mean-payoff objective with probability 1, positive probability or, in the quantitative setting, under a target threshold.

The invited-talk paper by Jean-Francois Raskin, co-authored with Krishnendu Chatterjee, Laurent Doyen, and Mickael Randour, considers a conservative approximation of mean-payoff and total-payoff games in the one-dimension and multiple-dimension settings.

The invited-talk paper by Michael Wooldridge, co-authored with Julian Gutierrez and Paul Harrenstein, investigates the computational complexity of game-theoretic decision problems for iterated Boolean games in which players have goals given by LTL formulas.

The contributed paper by Laura Bozzelli, Bastien Maubert, and Sophie Pinchinat provides a study of uniformity-constraints imposed on strategies using formulas built from temporal modalities.

The contributed paper by Benedikt Brütsch addresses the problem of direct synthesis of imperative programs over a finite set of Boolean variables with respect to omega-regular specifications given by nondeterministic Büchi word automata.

The contributed paper by Simon Busard, Charles Pecheur, Hongyang Qu, and Franco Raimondi considers an extension of the logic ATL to reason about strategies under partial observability in systems with fairness constraints.

The contributed paper by Christophe Chareton, Julien Brunel, and David Chemouil proposes and investigates USL, an extension of Strategy Logic in which strategies are non-deterministic and can be revoked along a play.

We would like to thank the authors and the reviewers for all the work leading to this volume.

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