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Nota di contenuto	Preface -- Organization -- Contents -- The ARCH-COMP Friendly Verification Competition for Continuous and Hybrid Systems -- 1 Introduction -- 2 Verification of Continuous, Hybrid, and Stochastic Systems -- 2.1 The Formal Verification Approach -- 2.2 Continuous, Hybrid, and Stochastic Systems -- 2.3 Verification Problems -- 2.4 Synthesis Problems -- 2.5 Problem Instances -- 2.6 Inherent Challenges in Evaluating Results -- 3 Competition Format and Organization -- 3.1 A Friendly Format -- 3.2 Organization and Schedule -- 3.3 Artifacts and Results -- 4 Thematic Groups of the Competition -- 4.1 Piecewise Constant Dynamics -- 4.2 Continuous and Hybrid Systems with Linear Dynamics -- 4.3 Nonlinear Dynamics -- 4.4 Artificial Intelligence and Neural Network Control Systems (AINNCS) -- 4.5 Stochastic Models -- 4.6 Falsification -- 4.7 Hybrid Systems Theorem Proving -- 5 Repeatability -- 6 Overall Achievements and Outlook -- References -- Competition of Solvers for Constrained Horn Clauses (CHC-COMP

Sommario/riassunto

TOOLympics 2023 was the third edition of a series of events to showcase competitions in the area of formal methods, colocated with the European Joint Conferences on Theory and Practice of Software (ETAPS 2023), held in April in Paris, France. The goal is to acknowledge the achievements of the various research competitions and comparative evaluations broadly related to the field of formal methods, to explain to the audience which tools from the field of formal methods they evaluate, and to understand their commonalities and differences. The developers of the participating tools typically participate in the competitions and evaluations, choosing the right parameters for the tools, or the best workflow for the approach. A total of ten competitions joined TOOLympics in 2023 and were presented at the event: CHC-COMP, MCC, QComp, ARCH-COMP, RERS, SL-COMP, SV-COMP, Test-Comp, VerifyThis, and the VT-Long-Term Challenge. Six of these are represented in this proceedings volume as papers: ARCH-COMP, CHC-COMP, MCC, QComp, VerifyThis, and the VerifyThis Long-Term Challenge. Each of these papers was peer-reviewed in single-blind mode. The papers will be of value to researchers and practitioners who employ formal methods approaches such as model checking, program analysis, probabilistic analysis, runtime verification, SAT solving, and SMT solving.

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