

1. Record Nr.	UNINA9910483817503321
Titolo	Tools and Algorithms for the Construction and Analysis of Systems : 21st International Conference, TACAS 2015, Held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2015, London, UK, April 11-18, 2015, Proceedings / / edited by Christel Baier, Cesare Tinelli
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2015
ISBN	3-662-46681-3
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (XVIII, 725 p. 210 illus.)
Collana	Theoretical Computer Science and General Issues, , 2512-2029 ; ; 9035
Disciplina	004.21
Soggetti	Computer science Algorithms Software engineering Compilers (Computer programs) Machine theory Computer Science Logic and Foundations of Programming Software Engineering Theory of Computation Compilers and Interpreters Formal Languages and Automata Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Scalable Timing Analysis with Refinement -- A Formally Verified Hybrid System for the Next-Generation Airborne Collision Avoidance System -- Verified Reachability Analysis of Continuous Systems -- HyComp: An SMT-Based Model Checker for Hybrid Systems -- C2E2: A Verification Tool for Stateflow Models -- Non-cumulative Resource Analysis -- Value Slice: A New Slicing Concept for Scalable Property Checking -- A Method for Improving the Precision and Coverage of Atomicity Violation Predictions -- Commutativity of Reducers -- Inferring Simple Solutions to Recursion-Free Horn Clauses via Sampling -- Analysis of Dynamic Process Networks -- MULTIGAIN: A Controller Synthesis Tool for MDPs

with Multiple Mean-Payoff Objectives -- syntMaskFT: A Tool for Synthesizing Masking Fault-Tolerant Programs from Deontic Specifications -- vZ - An Optimizing SMT Solver -- dReach: - Reachability Analysis for Hybrid Systems -- Uppaal Stratego -- BINSEC: Binary Code Analysis with Low-Level Regions -- Insight: An Open Binary Analysis Framework -- SAM: The Static Analysis Module of the MAVERIC Mobile App Security Verification Platform -- Symbolic Model-Checking Using ITS-Tools -- Semantic Importance Sampling for Statistical Model Checking -- Strategy Synthesis for Stochastic Games with Multiple Long-Run Objectives -- FAUST2: Formal Abstractions of Uncountable-State Stochastic Processes -- Linearly Ordered Attribute Grammar Scheduling Using SAT-Solving -- On Parallel Scalable Uniform SAT Witness Generation -- Approximate Counting in SMT and Value Estimation for Probabilistic Programs -- Pushing the Envelope of Optimization Modulo Theories with Linear-Arithmetic Cost Functions -- Stateless Model Checking for TSO and PSO -- GPU Accelerated Strong and Branching Bisimilarity Checking -- Fairness for Infinite-State Systems -- Software Verification and Verifiable Witnesses -- AProVE: Termination and Memory Safety of C Programs -- Cascade -- CPAchecker with Support for Recursive Programs and Floating-Point Arithmetic -- CPArec: Verifying Recursive Programs via Source-to-Source Program Transformation -- Framework for Embedded System Verification -- Forester: Shape Analysis Using Tree Automata -- MUCSeq 0.3: Sequentialization by Read-Implicit and Coarse-Grained Memory Unwindings -- Perentie: Modular Trace Refinement and Selective Value Tracking -- Predator Hunting Party -- SeaHorn: A Framework for Verifying C Programs -- SMACK+Corral: A Modular Verifier -- Ultimate Automizer with Array Interpolation -- Ultimate Kojak with Memory Safety Checks -- Unbounded Lazy-CSeq: A Lazy Sequentialization Tool for C Programs with Unbounded Context Switches -- FuncTion: An Abstract Domain Functor for Termination -- Model Checking Gene Regulatory Networks -- Symbolic Quantitative Robustness Analysis of Timed Automata -- Pattern-Based Refinement of Assume-Guarantee Specifications in Reactive Synthesis -- Assume-Guarantee Synthesis for Concurrent Reactive Programs with Partial Information -- Shield Synthesis: Runtime Enforcement for Reactive Systems -- Verifying Concurrent Programs by Memory Unwinding -- AutoProof: Auto-Active Functional Verification of Object-Oriented Programs -- An LTL Proof System for Runtime Verification -- MARQ: Monitoring at Runtime with QEA -- Parallel Explicit Model Checking for Generalized Bchi Automata -- Limit Deterministic and Probabilistic Automata for LTL\GU -- Saturation-Based Incremental LTL Model Checking with Inductive Proofs -- Nested Antichains for WS1S -- Sylvan: Multi-core Decision Diagrams -- LTSmin: High-Performance Language-Independent Model Checking -- Using a Formal Model to Improve Verification of a Cache-Coherent System-on-Chip.

## Sommario/riassunto

This book constitutes the proceedings of the 21st International Conference on Tools and Algorithms for the Construction and Analysis of Systems, TACAS 2015, which took place in London, UK, in April 2015, as part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2015. The 45 papers included in this volume, consisting of 27 research papers, 2 case-study papers, 7 regular tool papers and 9 tool demonstration papers, were carefully reviewed and selected from 164 submissions. In addition, the book contains one invited contribution. The papers have been organized in topical sections on hybrid systems; program analysis; verification and abstraction; tool demonstrations; stochastic models; SAT and SMT; partial order reduction, bisimulation, and fairness; competition on

software verification; parameter synthesis; program synthesis; program  
and runtime verification; temporal logic and automata and model  
checking.

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