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Nota di contenuto	Intro -- Preface -- Organization -- Invited Keynote Talks -- Two Projects on Human Interaction with AI -- Automating Relational Verification of Infinite-State Programs -- Contents - Part I -- Contents - Part II -- Abstract Interpretation -- Formal Runtime Error Detection During Development in the Automotive Industry -- 1 Introduction -- 2 Background -- 3 Module-Level Abstract Interpretation with Contracts -- 3.1 Generating a Verification Harness -- 3.2 Contracts and Their Effects -- 4 Automatically Inferring Contracts -- 4.1 Contracts from Interface Specifications -- 4.2 Contracts from Abstract Interpretation -- 5 Case Study -- 6 Practical Experiences with Large Systems -- 6.1 Embedded Control Software -- 6.2 Embedded Software Library -- 7 Lessons Learned -- 8 Related Work -- 9 Conclusion -- References -- Abstract Interpretation-Based Feature Importance for Support Vector Machines -- 1 Introduction -- 2 Background -- 3 Methodology -- 3.1 Abstract Feature Importance -- 3.2 Abstracting One-Hot Encoding -- 3.3 Individual Fairness -- 3.4 Searching for Counterexamples -- 4 Experimental Evaluation -- 5 Conclusion -- References -- Generation of Violation Witnesses by Under-Approximating Abstract Interpretation -- 1 Introduction -- 2 Semantics -- 2.1 Notation -- 2.2 Background on Sufficient Preconditions Semantic -- 2.3 User Input -- 2.4 Integer Wrapping -- 3 Powerset Domain -- 3.1 Under-Approximated Powerset

-- 3.2 Case Study: Polyhedra Refinement -- 4 Implementation and Experiments -- 5 Conclusion -- References -- Correctness Witness Validation by Abstract Interpretation -- 1 Introduction -- 2 Preliminaries -- 2.1 Witnesses -- 2.2 Abstract Interpretation -- 3 Initialization-Based Approaches -- 4 Unassuming -- 4.1 Specification -- 4.2 Naïve Definition -- 4.3 Dual-Narrowing -- 5 Unassuming Indirectly -- 5.1 Propagating Unassume -- 6 Evaluation. 6.1 Precision Evaluation -- 6.2 Performance Evaluation -- 7 Related Work -- 8 Conclusion -- References -- Infinite-State Systems -- Project and Conquer: Fast Quantifier Elimination for Checking Petri Net Reachability -- 1 Introduction -- 2 Petri Nets and Polyhedral Abstraction -- 3 Combining Polyhedral Abstraction with Reachability -- 4 Projecting Formulas Using Token Flow Graphs -- 5 Formal Procedure and Proof of Correctness -- 6 Experimental Results -- 7 Discussion and Related Works -- References -- Parameterized Verification of Disjunctive Timed Networks -- 1 Introduction -- 2 Preliminaries -- 2.1 Parameterized Verification Problems -- 2.2 Symbolic Semantics of Timed Automata -- 3 Minimum-Time Reachability Algorithm for DTN- -- 3.1 Symbolic Semantics for DTN- -- 3.2 An Algorithm for Solving Minreach -- 3.3 Verification of DTNs -- 4 Conditions for Decidability with Location Invariants -- 5 Evaluation -- 6 Conclusion -- References -- Resilience and Home-Space for WSTS -- 1 Introduction -- 2 Well-Structured Transition Systems and VASS -- 3 Resilience for WSTS -- 3.1 Case: Safe="3222378 Safe -- 3.2 Case: Safe="3223379 Safe -- 4 State-Resilience -- 4.1 Case: Safe= "3222378 Safe -- 4.2 Case: Safe="3223379 Safe -- 5 Resilience for VASS and Variations -- 6 Conclusion and Perspectives -- References -- Model Checking and Synthesis -- Generic Model Checking for Modal Fixpoint Logics in COOL-MC -- 1 Introduction -- 2 Model Checking for the Coalgebraic -Calculus -- 3 Implementation - Model Checking in COOL-MC -- 4 Experimental Evaluation of the Implementation -- 5 Conclusions and Future Work -- References -- Model-Guided Synthesis for LTL over Finite Traces -- 1 Introduction -- 2 Preliminaries -- 2.1 LTL over Finite Traces (LTLf) -- 2.2 Transition-Based DFA -- 2.3 LTLf Realizability, Synthesis, and tdfa Games -- 3 LTLf-to-tdfa via Progression. 4 Guided LTL f Synthesis with Satisfiable Traces -- 4.1 An Example -- 4.2 The Synthesis Algorithm MoGuS -- 4.3 Back to Our Example -- 5 Experimental Evaluation -- 5.1 Experimental Set-Up -- 5.2 Results and Analysis I: Random and Two-player-Games Benchmarks -- 5.3 Results and Analysis II: Ascending Benchmarks -- 6 LTL Synthesis - Related Work -- 7 Concluding Remarks -- References -- Solving Two-Player Games Under Progress Assumptions -- 1 Introduction -- 2 Preliminaries -- 3 Problem Statement -- 4 Strong Transition Fairness Assumptions -- 5 Strong Transition Co-fairness Assumptions -- 6 Group Transition Fairness Assumptions -- 6.1 Live Group Assumptions -- 6.2 Singleton-Source Live Groups -- 6.3 Live Groups in Product Games -- 6.4 A Remark on Co-live Groups -- 7 Persistent Live Group Assumptions -- 7.1 Augmented Reachability Games -- 7.2 Augmented Parity Games -- References -- SAT, SMT, and Automated Reasoning -- Interpolation and Quantifiers in Ortholattices -- 1 Introduction -- 2 Quantified Orthologic: Syntax, Semantics, and a Complete Proof System -- 2.1 Complete Ortholattices -- 2.2 Soundness -- 2.3 Completeness -- 3 No Quantifier Elimination for Orthologic -- 4 Failure of a Refutation-Based Interpolation -- 5 Interpolation for Orthologic Formulas -- 6 Further Related Work -- 7 Conclusion -- References -- Function Synthesis for Maximizing Model Counting -- 1 Introduction -- 2 Problem Statement -- 2.1 Preliminaries -- 2.2 Problem Formulation -- 2.3 Hardness of DQMax#SAT -- 3 Global Method -- 4 Incremental

Method -- 5 Local Method -- 5.1 Reducing Common Dependencies -- 5.2 Solving Variables with No Dependencies -- 6 Application to Software Security -- 6.1 Our Model of Security in Presence of an Adaptive Adversary -- 6.2 Security as a Rechability Property -- 6.3 Security as a Lack of Leakage Property. 6.4 Some Remarks About the Applications to Security -- 7 Implementation and Experiments -- 8 Related Work -- 9 Conclusions -- References -- Boosting Constrained Horn Solving by Unsat Core Learning -- 1 Introduction -- 2 Preliminaries -- 2.1 Notations -- 2.2 Constraint Horn Clauses -- 2.3 Graph Neural Networks -- 3 Abstract Symbolic Model Checking for CHCs -- 3.1 Satisfiability Checking for CHCs -- 3.2 CEGAR- And Symbolic Execution-Style Exploration -- 4 Guiding CHC Solvers Using MUSes -- 4.1 Minimal Unsatisfiable Sets -- 4.2 MUS-Based Guidance for CHC Solvers -- 5 Design of Model -- 5.1 Encode CHCs to Graph Representation -- 5.2 Model Structure -- 6 Evaluation -- 6.1 Benchmark -- 6.2 Parameters -- 6.3 Experimental Results -- 7 Related Work -- 8 Conclusion and Future Works -- References -- On the Verification of the Correctness of a Subgraph Construction Algorithm -- 1 Introduction -- 2 The CP-Algorithm -- 2.1 The CP-Algorithm -- Idea of the Correctness Proof -- 3 Modeling Geometric Graphs -- 3.1 Geometric Axioms -- 3.2 Axiomatizing Graph Properties -- 3.3 Axioms for Notions Used in the CP-Algorithm -- 3.4 Axioms for Notions Used in the Correctness Proof -- 4 Automated Reasoning -- 4.1 Analyzing the Axioms -- Decidability -- 4.2 Choosing the Proof Systems -- 4.3 Automated Proof of Properties of Geometric Graphs -- 4.4 Correctness of the CP-Algorithm: Verifying Main Steps -- 4.5 Connection Between the Components X and Y -- 4.6 Proof of Properties for the Convex Hull -- 4.7 Constructing a Counterexample Without Coexistence Property -- 5 Conclusion -- References -- Efficient Local Search for Nonlinear Real Arithmetic -- 1 Introduction -- 1.1 Contributions -- 1.2 Related Work -- 1.3 Structure of the Paper -- 2 Preliminaries -- 3 Incremental Computation of Variable Scores -- 4 Relaxation of Equalities -- 5 Implementation. 5.1 Heuristic Moves Selection and Look-Ahead -- 5.2 Implementation Details -- 6 Evaluation -- 6.1 Overall Result -- 6.2 Comparison with Other Work on Local Search -- 6.3 Effect of Incremental Computation of Variable Scores -- 6.4 Effect of Relaxation of Equalities -- 6.5 Other Techniques -- 7 Conclusion -- References -- Author Index.

2. Record Nr.	UNINA9910337953803321
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Nota di contenuto	Chapter 1: Introduction: Darwin in the Larger Intellectual Context -- Part I: Historical Shallowness -- Chapter 2: Evolution in a Fully Constituted World -- Part II: To Travel in Geographical Space is to Travel in Geological Time -- Chapter 3: Imposing Order Upon Complexity: Divergence Forward in Time (Origin, chap. 1-5, 8) -- Chapter 4: The Wild Power of Natural Selection: Vertical Evolution, Analogies, and Imaginary Scenarios (Origin, chap. 6-7) -- Chapter 5: An Attempt at Taming Natural Selection With Convergence Backward in Time, Part I (Origin, chap. 11-12) -- Chapter 6: An Attempt at Taming Natural Selection With Convergence Backward in Time, Part II (Origin, chap. 13) -- Part III: Evolutionary Dynamics -- Chapter 7: Cyclicity, Evolutionary Equilibrium, and Biological Progress -- Part IV: A Question of Methods -- Chapter 8: Methodologies for a World Already Revealed -- Chapter 9: Conclusion: A restored unity in the Origin of Species?.
Sommario/riassunto	This book offers a thorough reanalysis of Charles Darwin's Origin of

Species, which for many people represents the work that alone gave rise to evolutionism. Of course, scholars today know better than that. Yet, few resist the temptation of turning to the Origin in order to support it or reject it in light of their own work. Apparently, Darwin fills the mythical role of a founding figure that must either be invoked or repudiated. The book is an invitation to move beyond what is currently expected of Darwin's magnum opus. Once the rhetorical varnish of Darwin's discourses is removed, one discovers a work of remarkably indecisive conclusions. The book comprises two main theses: (1) The Origin of Species never remotely achieved the theoretical unity to which it is often credited. Rather, Darwin was overwhelmed by a host of phenomena that could not fit into his narrow conceptual framework. (2) In the Origin of Species, Darwin failed at completing the full conversion to evolutionism. Carrying many ill-designed intellectual tools of the 17th and 18th centuries, Darwin merely promoted a special brand of evolutionism, one that prevented him from taking the decisive steps toward an open and modern evolutionism. It makes an interesting read for biologists, historians and philosophers alike.
