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| Soggetti                | Software engineering<br>Programming languages (Electronic computers)<br>Computer logic<br>Computer system failures<br>Algorithms<br>Mathematical logic<br>Software Engineering<br>Programming Languages, Compilers, Interpreters<br>Logics and Meanings of Programs<br>System Performance and Evaluation<br>Algorithm Analysis and Problem Complexity<br>Mathematical Logic and Formal Languages  |
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| Livello bibliografico   | Monografia  |
| Nota di contenuto       | A Retrospective Look at the Monitoring and Checking (MaC) Framework -- Introspective Environment Modeling -- Robustness of Specifications and its applications to Falsification, Parameter Mining, and Runtime Monitoring with S-TaLiRo -- On the Runtime Enforcement of Timed Properties -- Algorithms for Monitoring Hyperproperties -- Stream-based Monitors for Real-time Properties -- Accelerated Learning of Predictive Runtime Monitors for Rare Failure -- Neural Predictive Monitoring -- Comparing Controlled System Synthesis and Suppression Enforcement -- Assumption-Based Runtime Verification with Partial |

Observability and Resets -- Decentralized Stream Runtime Verification -- Explaining Violations of Properties in Control-Flow Temporal Logic -- FastCFI: Real-Time Control Flow Integrity using FPGA without Code Instrumentation -- An Extension of LTL with Rules and its Application to Runtime Verification -- Monitorability Over Unreliable Channels -- Runtime Verification For Timed Event Streams With Partial Information -- Shape Expressions for Specifying and Extracting Signal Features -- A Formally Verified Monitor for Metric First-Order Temporal Logic -- Efficient Detection and Quantification of Timing Leaks with Neural Networks -- Predictive Runtime Monitoring for Linear Stochastic Systems and Applications to Geofence Enforcement for UAVs -- Reactive Control Meets Runtime Verification: A Case Study of Navigation -- Overhead-aware deployment of runtime monitors -- NuRV: a nuXmv Extension for Runtime Verification -- AllenRV: an extensible monitor for multiple complex specifications with high reactivity -- Timescales: A Benchmark Generator for Metric Temporal Logic.

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Sommario/riassunto

This book constitutes the refereed proceedings of the 19th International Conference on Runtime Verification, RV 2019, held in Porto, Portugal, in October 2019. The 25 regular papers presented in this book were carefully reviewed and selected from 38 submissions. The RV conference is concerned with all aspects of monitoring and analysis of hardware, software and more general system executions. Runtime verification techniques are lightweight techniques to assess system correctness, reliability, and robustness; these techniques are significantly more powerful and versatile than conventional testing, and more practical than exhaustive formal verification. Chapter “Assumption-Based Runtime Verification with Partial Observability and Resets” and chapter “NuRV: a nuXmv Extension for Runtime Verification” are available open access under a Creative Commons Attribution 4.0 International License via [link.springer.com](http://link.springer.com).

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