1. Record Nr. UNINA9910798482303321

Titolo	Dependable software systems engineering / / edited by Javier Esparza, Orna Grumberg, Salomon Sickert
Pubbl/distr/stampa	Amsterdam, Netherlands : , : IOS Press, , 2016 ©2016
ISBN	9781614996279 1-61499-627-X
Descrizione fisica	1 online resource (296 pages)
Collana	NATO Science for Peace and Security Series : Sub-Series D: Information and Communication Security, , 1879-8292 ; ; Volume 45
Disciplina	005.8
Soggetti	Computer security Computer networks - Security measures Software engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and indexes.
Nota di contenuto	1. Probabilistic Model Checking -- SMT Solvers: Foundations and Applications -- 2. Formal Models for Analyzing Security Protocols: Some Lecture Notes -- 3. Parameterized Verification of Crowds of Anonymous Processes -- 4. Synthesis of Reactive Systems -- 5. Between Testing and Verification: Dynamic Software Model Checking -- 6. Learning-Based Compositional Model Checking of Behavioral UML Systems -- 7. Programming by Examples (and Its Applications in Data Wrangling) -- 8. Verification of Concurrent Software -- 9. A Tutorial on Mean-Payoff and Energy Games -- 10. Equivalence - Combinatorics, Algebra, Proofs -- 11. Analysis and Synthesis with "Big Code"
Sommario/riassunto	In the last few years we have all become daily users of Internet banking, social networks and cloud services. Preventing malfunctions in these services and protecting the integrity of private data from cyber attack are both current preoccupations of society at large. While modern technologies have dramatically improved the quality of software, the computer science community continues to address the problems of security by developing a theory of formal verification; a body of

methodologies, algorithms and software tools for finding and eliminating bugs and security hazards. This book presents lectures delivered at the NATO Advanced Study Institute (ASI) School Marktoberdorf 2015 – ‘Verification and Synthesis of Correct and Secure Systems'. During this two-week summer school, held in Marktoberdorf, Germany, in August 2015, the lecturers provided a comprehensive view of the current state-of-the-art in a large variety of subjects, including: models and techniques for analyzing security protocols; parameterized verification; synthesis of reactive systems; software model checking; composition checking; programming by examples; verification of current software; two-player zero-sum games played on graphs; software security by information flow; equivalents – combinatorics; and analysis of synthesis with 'Big Code'. The Marktoberdorf ASIs have become a high-level scientific nucleus of the international scientific network on formal methods, and one of the major international computer science summer schools. This book will be of interest to all those seeking an overview of current theories and applications in formal verification and security.