

1. Record Nr.	UNINA9910254981403321
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Titolo	Limits of Computation : From a Programming Perspective // by Bernhard Reus
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-27889-4
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (XVIII, 348 p. 80 illus.)
Collana	Undergraduate Topics in Computer Science, , 1863-7310
Disciplina	001.642
Soggetti	Algorithms Algorithm Analysis and Problem Complexity Mathematics of Algorithmic Complexity
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
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Sommario/riassunto

This textbook discusses the most fundamental and puzzling questions about the foundations of computing. In 23 lecture-sized chapters it provides an exciting tour through the most important results in the field of computability and time complexity, including the Halting Problem, Rice's Theorem, Kleene's Recursion Theorem, the Church-Turing Thesis, Hierarchy Theorems, and Cook-Levin's Theorem. Each chapter contains classroom-tested material, including examples and exercises. Links between adjacent chapters provide a coherent narrative. Fundamental results are explained lucidly by means of programs written in a simple, high-level imperative programming language, which only requires basic mathematical knowledge. Throughout the book, the impact of the presented results on the entire field of computer science is emphasised. Examples range from program analysis to networking, from database programming to popular games and puzzles. Numerous biographical footnotes about the famous scientists who developed the subject are also included. "Limits of Computation" offers a thorough, yet accessible, introduction to computability and complexity for the computer science student of the 21st century.
