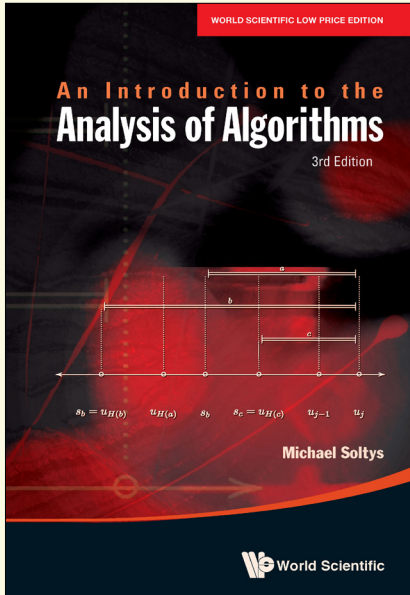


An Introduction to the Analysis of Algorithms

3rd Edition



By **Michael Soltys**
(California State University Channel Islands, USA)

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ABOUT THE BOOK

A successor to the first and second editions, this updated and revised book is a leading companion guide for students and engineers alike, specifically software engineers who design algorithms. While succinct, this edition is mathematically rigorous, covering the foundations for both computer scientists and mathematicians with interest in the algorithmic foundations of Computer Science.

Besides expositions on traditional algorithms such as Greedy, Dynamic Programming and Divide & Conquer, the book explores two classes of algorithms that are often overlooked in introductory textbooks: Randomised and Online algorithms — with emphasis placed on the algorithm itself. The book also covers algorithms in Linear Algebra, and the foundations of Computation.

The coverage of Randomized and Online algorithms is timely: the former have become ubiquitous due to the emergence of cryptography, while the latter are essential in numerous fields as diverse as operating systems and stock market predictions.

While being relatively short to ensure the essentiality of content, a strong focus has been placed on self-containment, introducing the idea of pre/post-conditions and loop invariants to readers of all backgrounds, as well as all the necessary mathematical foundations. The programming exercises in Python will be available on the web (see <http://www.msoltys.com/book> for the companion web site).

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ABOUT THE AUTHOR

Michael Soltys is Professor and Chair of Computer Science at California State University Channel Islands, USA, since 2014. Prior to which, he was a professor in the department of Computing and Software, at McMaster University beginning in 2001. He completed his PhD in 2001 at the University of Toronto, under the supervision of Stephen Cook. His research interests lie in Algorithms, especially in the areas of Strings Algorithms and Cybersecurity. Soltys has done a lot of work in Proof Complexity, which takes a predicate-logic approach to algorithms and studies proofs of correctness of algorithms in formal systems, and has recently become interested in Ranking Algorithms, and especially in the elegant Pairwise Comparisons Method.

Soltys consults with business and industry in the fields of Digital Forensics and Information Security, especially for SoCal HTTF (High Technology Task Force) and for Executek, where he is part of the executive leadership as director of IT. He regularly teaches courses in Cybersecurity and Algorithms.

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