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Springer 1849967202

The Algorithm Design Manual

Second Edition

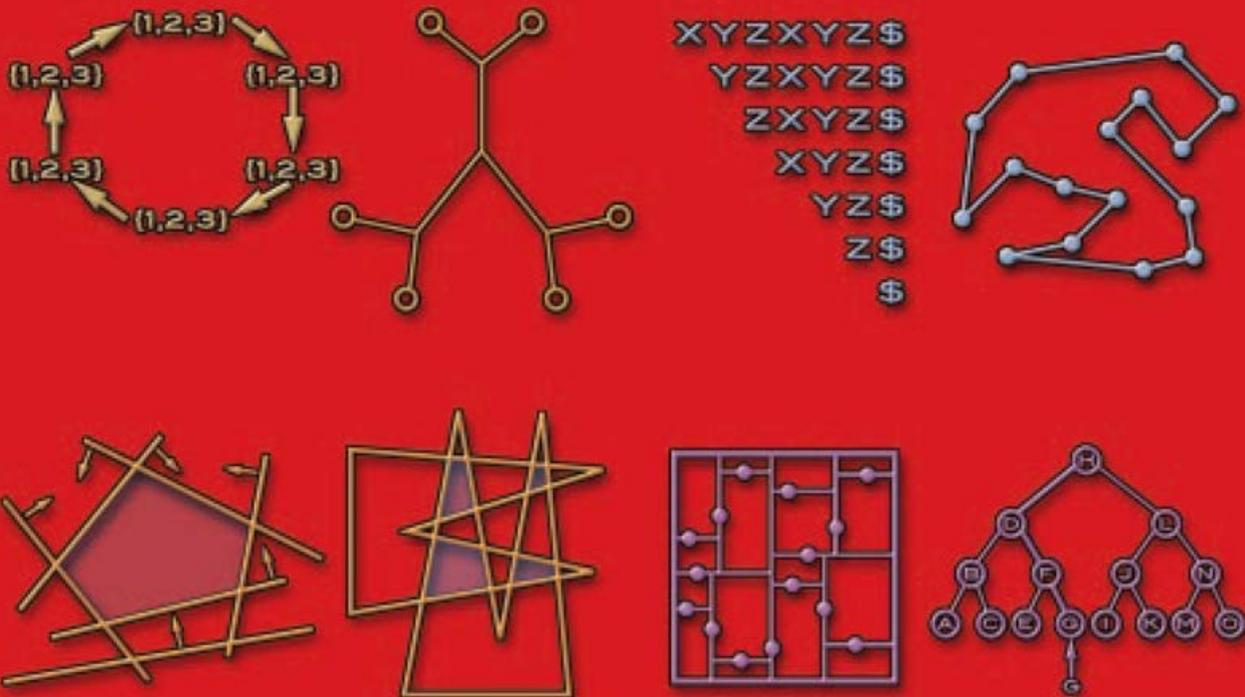
By Steven S. Skiena

INTRODUCTION

This manual provides an overview of *The Algorithm Design Manual*, Second Edition, a comprehensive resource for understanding and applying algorithms. It aims to demystify algorithm design and analysis, serving as both a primary textbook and a practical reference guide.

Second Edition

THE Algorithm Design MANUAL



Steven S. Skiena

 Springer

The cover of the book features the title 'The Algorithm Design Manual' and the author's name, Steven S. Skiena. It also displays several abstract diagrams representing different algorithmic concepts, such as graphs, trees, and data structures, against a red background.

KEY FEATURES AND CONTENT

The second edition of *The Algorithm Design Manual* offers significant enhancements and continues to provide straightforward access to combinatorial algorithms technology, emphasizing design over analysis. The book is divided into two main parts:

- **Techniques:** This section provides accessible instruction on methods for designing and analyzing computer algorithms.
- **Resources:** Intended for browsing and reference, this part comprises a catalog of algorithmic resources, implementations, and an extensive bibliography.

New to the Second Edition:

- **Expanded Material:** The tutorial material and exercises have been doubled compared to the first edition.
- **Online Support:** Full online support is provided for lecturers, including a completely updated and improved website component with lecture slides, audio, and video resources.
- **Unique Problem Catalog:** Contains a unique catalog identifying the 75 algorithmic problems that arise most often in practice, guiding readers to appropriate solutions.
- **Real-World Applications:** Includes several new "war stories" that relate experiences from real-world applications of algorithms.
- **Up-to-Date Implementations:** Provides up-to-date links leading to the best algorithm implementations available in C, C++, and Java.
- **Learning Tools:** Exercises include "job interview problems" from major software companies, highlighted take-home lesson boxes, comprehensive references, and programming contest challenge problems.
- **Code Examples:** Many algorithms are presented with actual code (written in C) as well as pseudo-code.

TARGET AUDIENCE

This book is designed for a diverse audience, including:

- Students taking algorithm design courses.
- Programmers seeking practical reference guides for algorithms.
- Researchers in computer science and related fields.
- Professionals who need an authoritative and insightful guide to solving real-world problems with algorithms.

ABOUT THE AUTHOR

Steven Skiena is a Professor of Computer Science at Stony Brook University. His research interests encompass the design of graph, string, and geometric algorithms, with a particular focus on their applications, especially in biology. He is the author of four books, including *The Algorithm Design Manual* and *Calculated Bets: Computers, Gambling, and Mathematical Modeling to Win*. Professor Skiena is a recipient of the ONR Young Investigator Award and the IEEE Computer Science and Engineering Undergraduate Teaching Award.

SPECIFICATIONS

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ADDITIONAL RESOURCES

A full set of lecture slides and additional material related to the book are available at the official website:

www.algorist.com

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