



A Concise Introduction to Data Compression (Undergraduate Topics in Computer Science)

By David Salomon

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This clearly written book offers readers a succinct foundation to the most important topics in the field of data compression. Part I presents the basic approaches to data compression and describes a few popular techniques and methods that are commonly used to compress data. The reader will discover essential concepts. Part II concentrates on advanced techniques, such as arithmetic coding, orthogonal transforms, subband transforms and Burrows-Wheeler transform. This book is the perfect reference for advanced undergraduates in computer science and requires a minimum of mathematics. An author-maintained website provides errata and auxiliary material.

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Editorial Review

Review

From the reviews:

"This book on data compression ... can be considered an introductory one into a part of coding theory. ... can be used by students who want to understand a general description of data compression and some of the important themes in this domain. ... In each part exercises are provided, and solutions for them can be found at the end of the book. ... Overall, the book ... is particularly suitable for undergraduate students to be used for laboratory purposes." (Nicolae Constantinescu, Zentralblatt MATH, Vol. 1147, 2008)

"This book provides an overview of compression methods in general, and goes into a fair amount of detail for some specific algorithms in use. ... On the whole, this could be a useful book for a short course on compression at the undergraduate level, and would provide students with a taste for the material." (Jeffrey Putnam, ACM Computing Reviews, December, 2008)

"In the present book, multiple explanations and examples are used to clarify and expose different and important concepts, such as entropy and variable length coding. The book also includes a numerous program code snippets. These programs are clearly written and so should be easily understood by students. The book is excellent and fills the stated goal. When I am going to teach data compression again, I will most definitely use A Concise Introduction to Data Compression as a textbook for the class." (Ville Hautamäki, SIGACT News, April, 2012)

From the Back Cover

Compressing data is an option naturally selected when faced with problems of high costs or restricted space. Written by a renowned expert in the field, this book offers readers a succinct, reader-friendly foundation to the chief approaches, methods and techniques currently employed in the field of data compression.

Part I presents the basic approaches to data compression and describes a few popular techniques and methods commonly used to compress data. The reader discovers essential concepts, such as variable-length and prefix codes, statistical distributions and run-length encoding. Part II then concentrates on advanced techniques, such as arithmetic coding, orthogonal transforms, subband transforms and the Burrows-Wheeler transform.

Features:

- Clear overview of the principles underlying this field
- Outlines the essentials of the various approaches to compressing data
- Contains many learning aids such as: chapter introductions and summaries, chapter-end exercises, comprehensive glossary, etc.
- Provides several examples of important compression algorithms

- Offers a supplementary author-maintained website, with errata and auxiliary material – www.davidsalomon.name/DCugAdvertis/DCug.html
- An ideal introductory volume to David Salomon's fourth edition of *Data Compression: The Complete Reference*

Complete and clear, this book is the perfect resource for undergraduates in computer science and requires a minimum of mathematics. It is also ideal for readers with a basic knowledge of computer science wanting to learn about data compression.

David Salomon is a professor emeritus of Computer Science at California State University, Northridge. He has authored numerous articles and books, including *Coding for Data and Computer Communications*, *Guide to Data Compression Methods*, *Data Privacy and Security*, *Computer Graphics and Geometric Modeling*, *Foundations of Computer Security*, *Transformations and Projections in Computer Graphics*, and *Variable-length Codes for Data Compression*.

Users Review

From reader reviews:

Gerald Hackler:

The book with title *A Concise Introduction to Data Compression (Undergraduate Topics in Computer Science)* contains a lot of information that you can understand it. You can get a lot of gain after read this book. This book exist new knowledge the information that exist in this guide represented the condition of the world at this point. That is important to you to understand how the improvement of the world. That book will bring you inside new era of the the positive effect. You can read the e-book on the smart phone, so you can read that anywhere you want.

Lisa Gonzales:

A Concise Introduction to Data Compression (Undergraduate Topics in Computer Science) can be one of your nice books that are good idea. Many of us recommend that straight away because this publication has good vocabulary that may increase your knowledge in vocab, easy to understand, bit entertaining but still delivering the information. The article author giving his/her effort to get every word into delight arrangement in writing *A Concise Introduction to Data Compression (Undergraduate Topics in Computer Science)* although doesn't forget the main stage, giving the reader the hottest as well as based confirm resource details that maybe you can be among it. This great information can certainly drawn you into brand-new stage of crucial pondering.

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