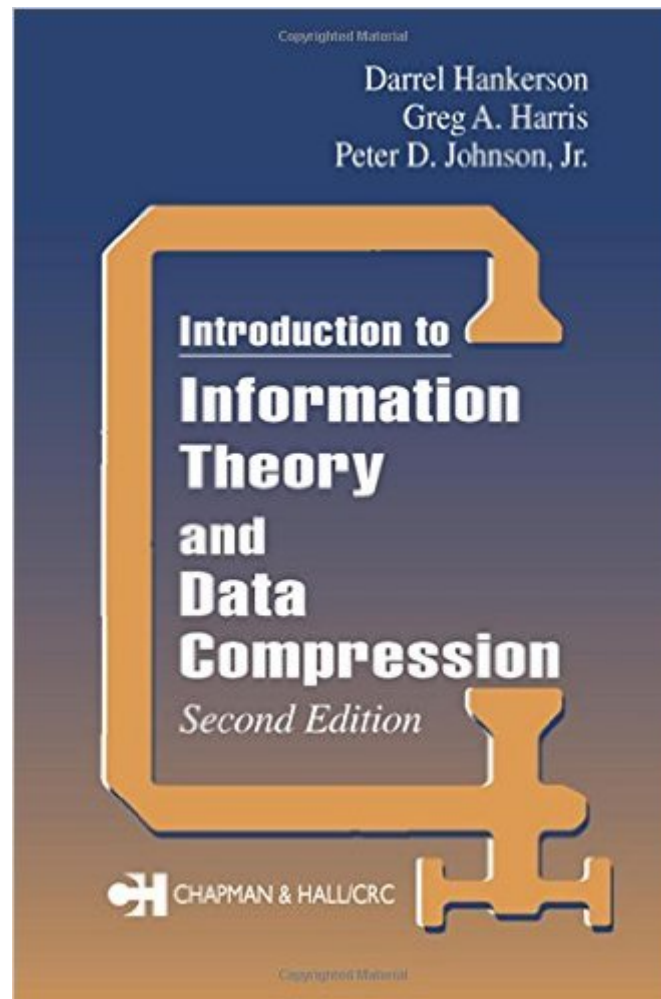


The book was found

Introduction To Information Theory And Data Compression, Second Edition (Applied Mathematics)



Synopsis

An effective blend of carefully explained theory and practical applications, this text imparts the fundamentals of both information theory and data compression. Although the two topics are related, this unique text allows either topic to be presented independently, and it was specifically designed so that the data compression section requires no prior knowledge of information theory. The treatment of information theory, while theoretical and abstract, is quite elementary, making this text less daunting than many others. After presenting the fundamental definitions and results of the theory, the authors then apply the theory to memoryless, discrete channels with zeroth-order, one-state sources. The chapters on data compression acquaint students with a myriad of lossless compression methods and then introduce two lossy compression methods. Students emerge from this study competent in a wide range of techniques. The authors' presentation is highly practical but includes some important proofs, either in the text or in the exercises, so instructors can, if they choose, place more emphasis on the mathematics. *Introduction to Information Theory and Data Compression, Second Edition* is ideally suited for an upper-level or graduate course for students in mathematics, engineering, and computer science. **Features:** Expanded discussion of the historical and theoretical basis of information theory that builds a firm, intuitive grasp of the subject; Reorganization of theoretical results along with new exercises, ranging from the routine to the more difficult, that reinforce students' ability to apply the definitions and results in specific situations; Simplified treatment of the algorithm(s) of Gallager and Knuth; Discussion of the information rate of a code and the trade-off between error correction and information rate; Treatment of probabilistic finite state source automata, including basic results, examples, references, and exercises; Octave and MATLAB image compression codes included in an appendix for use with the exercises and projects involving transform methods; Supplementary materials, including software, available for download from the authors' Web site at www.dms.auburn.edu/compression

Book Information

Series: Applied Mathematics

Hardcover: 384 pages

Publisher: Chapman and Hall/CRC; 2 edition (February 26, 2003)

Language: English

ISBN-10: 1584883138

ISBN-13: 978-1584883135

Product Dimensions: 9.7 x 6.1 x 0.9 inches

Shipping Weight: 1.5 pounds (View shipping rates and policies)

Average Customer Review: 4.8 out of 5 stars [See all reviews](#) (4 customer reviews)

Best Sellers Rank: #1,100,026 in Books (See Top 100 in Books) #192 in [Books > Science & Math > Mathematics > Pure Mathematics > Combinatorics](#) #326 in [Books > Computers & Technology > Computer Science > Information Theory](#) #469 in [Books > Computers & Technology > Networking & Cloud Computing > Network Administration > Storage & Retrieval](#)

Customer Reviews

The authors of this well balanced textbook succeed admirably well in teaching the subject to the union of students in math and in cs, and to engineers. The danger with subjects that cut across fields is that they might appeal to the intersection of audiences involved rather than to the much larger union. The authors seem to be at home with all the types of readers, they realize that the lingo and the aim is different for the different and diverse groups of students. Indeed, the tools of information theory, data compression, and arithmetic coding are widely used in science. While the mathematical parts of the subject is old [Shannon, Kolmogorov..., measurements of information, entropy, channel capacity], the applications are still going strong, with new things coming out at a fast rate right up to the present. So the emphasis in the book on data and image compression is very appropriate. There is even a JPEGtool user's guide in the appendix.

I am a graduate student in computer science and I have read a lot of books on this subject, including 1- Digital Image Compression, by Weidong Kou, 2- The Data Compression Book, by Mark Nelson, 3- JPEG Still Image Data Compression Standard, by Pennebaker. I have also browsed few other books on this subject, but one thing I can say for sure, that this is the best book ever written on the subject of Compression. It explains the information theory and data Compression in the best possible way, with best examples. Once read, you will never forget the algorithms. I just love this book, and read it every once in a while.

This book breaks ground even now in the 21st Century! There's not a day that goes by - and I mean this literally - that I do not use this book to break ground - and I mean that figuratively. Wait - no, I mean that literally, too, come to think about it, if one considers the as-yet-untilled fertile loam of consciousness the ground through which this slender tome "turns the soil..." When seedling theory raises a tentative monocotyledon into the light of possibility, it quickly wellsprings into that cornucopia however you spell it of brilliant whatchamacallit - information theory or simply the plain

old everyday garden variety GENIUS that we have come to expect of Peter D. Johnson, boy inventor. More, Professor Johnson, MORE!!!

I read a lot of books on Compression, but this is indeed the best one I ever bought. I love this book and read it frequently.

[Download to continue reading...](#)

Introduction to Information Theory and Data Compression, Second Edition (Applied Mathematics)
Data Analytics: Practical Data Analysis and Statistical Guide to Transform and Evolve Any Business
Leveraging the Power of Data Analytics, Data Science, ... (Hacking Freedom and Data Driven Book 2)
Data Architecture: A Primer for the Data Scientist: Big Data, Data Warehouse and Data Vault
Computer Speech: Recognition, Compression, Synthesis (Springer Series in Information Sciences)
The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences
Big Data For Beginners: Understanding SMART Big Data, Data Mining & Data Analytics For improved Business Performance, Life Decisions & More!
Discovering Knowledge in Data: An Introduction to Data Mining (Wiley Series on Methods and Applications in Data Mining)
Data Just Right: Introduction to Large-Scale Data & Analytics (Addison-Wesley Data and Analytics)
Coding Theory and Cryptography: The Essentials, Second Edition (Chapman & Hall/CRC Pure and Applied Mathematics)
Living Biotensegrity: Interplay of Tension and Compression in the Body
The Art of Compression
An Introduction to Differentiable Manifolds and Riemannian Geometry, Revised, Volume 120, Second Edition (Pure and Applied Mathematics)
Differential Equations, Dynamical Systems, and an Introduction to Chaos, Second Edition (Pure and Applied Mathematics)
Big Data, MapReduce, Hadoop, and Spark with Python: Master Big Data Analytics and Data Wrangling with MapReduce
Fundamentals using Hadoop, Spark, and Python
LEARN IN A DAY! DATA WAREHOUSING. Top Links and Resources for Learning Data Warehousing ONLINE and OFFLINE: Use these FREE and PAID resources to Learn Data Warehousing in little to no time
Indexing It All: The Subject in the Age of Documentation, Information, and Data (History and Foundations of Information Science)
Pacific Crest Trail Data Book: Mileages, Landmarks, Facilities, Resupply Data, and Essential Trail Information for the Entire Pacific Crest Trail, from Mexico to Canada
Stochastic Models, Information Theory, and Lie Groups, Volume 2: Analytic Methods and Modern Applications (Applied and Numerical Harmonic Analysis)
The Kurzweil-Henstock Integral and Its Differential: A Unified Theory of Integration on \mathbb{R} and \mathbb{R}^n (Chapman & Hall/CRC Pure and Applied Mathematics)
Theory of Orlicz Spaces (Chapman & Hall Pure and Applied Mathematics)

[Dmca](#)