

1. Record Nr.	UNINA9910784532203321
Autore	Sayood Khalid
Titolo	Introduction to data compression / / Khalid Sayood, University of Nebraska
Pubbl/distr/stampa	Amsterdam, [Netherlands] : , : Morgan Kaufmann, , 2006 ©2006
ISBN	1-281-22731-5 9786611227319 0-08-050925-8
Edizione	[Third edition.]
Descrizione fisica	1 online resource (703 p.)
Collana	Morgan Kaufmann Series in Multimedia Information and Systems
Disciplina	005.74/6
Soggetti	Data compression (Telecommunication) Coding theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front cover; Title page; Copyright page; Table of contents; Preface; Audience; Course Use; Approach; Learning from This Book; Content and Organization; A Personal View; Acknowledgments; 1 Introduction; 1.1 Compression Techniques; 1.1.1 Lossless Compression; 1.1.2 Lossy Compression; 1.1.3 Measures of Performance; 1.2 Modeling and Coding; 1.3 Summary; 1.4 Projects and Problems; 2 Mathematical Preliminaries for Lossless Compression; 2.1 Overview; 2.2 A Brief Introduction to Information Theory; 2.2.1 Derivation of Average Information; 2.3 Models; 2.3.1 Physical Models; 2.3.2 Probability Models 2.3.3 Markov Models 2.3.4 Composite Source Model; 2.4 Coding; 2.4.1 Uniquely Decable Codes; 2.4.2 Prefix Codes; 2.4.3 The Kraft-McMillan Inequality; 2.5 Algorithmic Information Theory; 2.6 Minimum Description Length Principle; 2.7 Summary; 2.8 Projects and Problems; 3 Huffman Coding; 3.1 Overview; 3.2 The Huffman Coding Algorithm; 3.2.1 Minimum Variance Huffman Codes; 3.2.2 Optimality of Huffman Codes; 3.2.3 Length of Huffman Codes; 3.2.4 Extended Huffman Codes; 3.3 Nonbinary Huffman Codes; 3.4 Adaptive Huffman Coding; 3.4.1 Update Procedure; 3.4.2 Encoding Procedure

3.4.3 Decoding Procedure3.5 Golomb Codes; 3.6 Rice Codes; 3.6.1 CCSDS Recommendation for Lossless Compression; 3.7 Tunstall Codes; 3.8 Applications of Huffman Coding; 3.8.1 Lossless Image Compression; 3.8.2 Text Compression; 3.8.3 Audio Compression; 3.9 Summary; 3.10 Projects and Problems; 4 Arithmetic Coding; 4.1 Overview; 4.2 Introduction; 4.3 Coding a Sequence; 4.3.1 Generating a Tag; 4.3.2 Deciphering the Tag; 4.4 Generating a Binary Code; 4.4.1 Uniqueness and Efficiency of the Arithmetic Code; 4.4.2 Algorithm Implementation; 4.4.3 Integer Implementation
4.5 Comparison of Huffman and Arithmetic Coding4.6 Adaptive Arithmetic Coding; 4.7 Applications; 4.8 Summary; 4.9 Projects and Problems; 5 Dictionary Techniques; 5.1 Overview; 5.2 Introduction; 5.3 Static Dictionary; 5.3.1 Digram Coding; 5.4 Adaptive Dictionary; 5.4.1 The LZ77 Approach; 5.4.2 The LZ78 Approach; 5.5 Applications; 5.5.1 File Compression-UNIX; 5.5.2 Image Compression-The Graphics Interchange Format (GIF); 5.5.3 Image Compression-Portable Network Graphics (PNG); 5.5.4 Compression over Modems-V.42 bis; 5.6 Summary; 5.7 Projects and Problems; 6 Context-Based Compression 6.1 Overview6.2 Introduction; 6.3 Prediction with Partial Match (ppm); 6.3.1 The Basic Algorithm; 6.3.2 The Escape Symbol; 6.3.3 Length of Context; 6.3.4 The Exclusion Principle; 6.4 The Burrows-Wheeler Transform; 6.4.1 Move-to-Front Coding; 6.5 Associative Coder of Buyanovsky (ACB); 6.6 Dynamic Markov Compression; 6.7 Summary; 6.8 Projects and Problems; 7 Lossless Image Compression; 7.1 Overview; 7.2 Introduction; 7.2.1 The Old JPEG Standard; 7.3 CALIC; 7.4 JPEG-LS; 7.5 Multiresolution Approaches; 7.5.1 Progressive Image Transmission; 7.6 Facsimile Encoding; 7.6.1 Run-Length Coding 7.6.2 CCITT Group 3 and 4-Recommendations T.4 and T.6

Sommario/riassunto

Each edition of Introduction to Data Compression has widely been considered the best introduction and reference text on the art and science of data compression, and the third edition continues in this tradition. Data compression techniques and technology are ever-evolving with new applications in image, speech, text, audio, and video. The third edition includes all the cutting edge updates the reader will need during the work day and in class. Khalid Sayood provides an extensive introduction to the theory underlying today's compression techniques with detailed instruction for their app
