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3.4.3 Decoding Procedure 3.5 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 Coding 4.6 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 Overview 6.2 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
