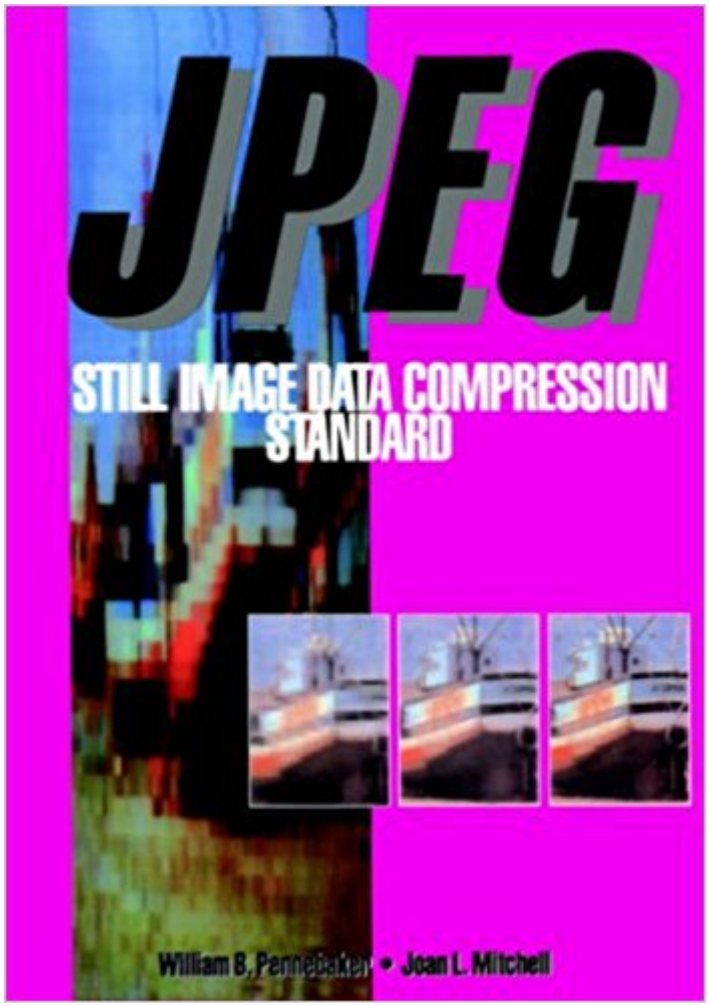
# JPEG: Still Image Data Compression Standard (Digital Multimedia Standards S)



## Synopsis

Created by the Joint Photographic Experts Group (JPEG), the JPEG is the first colour still image data compression international standard. It consists of 20 explicitly defined processes to encode or decode continuous tone still images.

## Book Information

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## Customer Reviews

It appears that neither author is a mathematician. The basics are stated correctly, but then the book goes into "fast" encoding and decoding algorithms which don’t work because the underlying mathematics is incorrect. The book forced me to look at the mathematics very carefully so that I now understand it all and have working algorithms.

One great feature of this book is the classification of paragraphs having differing degrees of Mathematical insight. I have a minor in Math, and mostly use the easy paragraphs, sometimes the middle-difficulty, and rarely the abstruse. I’ve seen experts start to wave their hands sometimes. With RAW files one may no longer need .JPG.

This is a reprint of the original JPEG book. Unfortunately, the publisher has scanned in the original. As a result, all of the photographs that are supposed to show the compression behavior and artifacts, show the scanned halftone artifacts instead.Get the original book if you possibly can.

Created by the Joint Photographic Experts Group, the JPEG standard defines a toolkit of processes for lossy and lossless encoding and decoding of continuous-tone still images. This guide, which includes the the complete text of the ISO JPEG standards DIS 10918-1 and draft DIS 10918-2, offers detailed information on the JPEG modes of operation, signaling conventions, and structure of compressed data. It also provides a general review of image-coding techniques, so it does not assume the reader has expert status in data compression and coding techniques.This is by far the most complete exposition of JPEG in existence. It’s written by two people who know what they are talking about: both served on the ISO JPEG standards committee. If you want to know how JPEG works or why it works that way, this is the book to have. There are a number of errors that were in the first printing of this book that were all repaired in the second printing. The official specification of JPEG is not currently available on-line, and is not likely ever to be available for free because of ISO and ITU copyright restrictions, which makes it valuable to have in this book.If you study this book in depth, you should be able to write programs that completely control the reading and writing of JPEG image files. This is different from most other books that contain scattered information on the JPEG standard and on image compression, but contain insufficient information for programmers who actually need to work with the standard on a pixel-by-pixel level. Also, considering this book was published by an "academic publisher", I was surprised at its accessible tone and numerous helpful diagrams. Note that if you are interested in JPEG2000, that this book does not contain information on that standard. The following is the table of contents:Introduction.Image Concepts and Vocabulary.Aspects of the Human Visual Systems.The Discrete Cosine Transform (DCT).Image Compression Systems.JPEG Modes of Operation.JPEG Syntax and Data Organization.Entropy Coding Concepts.JPEG Binary Arithmetic Coding.JPEG Coding Models.JPEG Huffman Entropy Coding.Arithmetic Coding Statistical.More on Arithmetic Coding.Probability Estimation.Compression Performance.JPEG Enhancements.JPEG Applications and Vendors.Overview of CCITT, ISO, and IEC.History of JPEG.Other Image Compression Standards.Possible Future JPEG Directions.

This book is a "must have" for anyone interested in understanding the JPEG standard. It has two distinct parts.The second half is the JPEG standard itself. It contains all the technical details of how JPEG works, including pseudocode flow charts, and test data to verify JPEG compliance.The first half is the author’s (less formal) understanding of the JPEG standard, where he explains the details of the standard which might be unclear to the novice.Everything from the aspects of the human visual system, to the mathematics of Discrete Cosine Transformation, to entropy coding, to JPEG

file organization is explained.I knew nothing about image processing before studying this book. After studying this book (for a long time) I was able to write a complete application and have total control over reading and writing JPG files.

This is a very advanced book with many technical details. A must have for everyone working in the field of image compression. For the beginner there is some text in the first part of the book, but I think that this book is primary for people working with actual implementations.

The only way to go! This is a well written book that is structured like a text book, but stays true to the standard. Excellent overview of FDCT theory and Entropy Coding.

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