

Compression for Multimedia

Bocharova, Irina. *Compression for Multimedia*. New York, NY: Cambridge University Press, 2010, 269 pp. \$69.00 (Hardbound).

Providing a thorough theoretical understanding of lossy compression techniques for image, video, speech, and audio compression, this book also covers the key features of each system, as well as practical applications, implementation issues, and design trade-offs. It presents comparisons of multimedia standards in terms of achieving known theoretical limits, whilst common and distinguishing features of the existing standards are explained and related to the background theory. There is detailed coverage of such topics as the H.264 video coding standard, low-complexity code-based vector quantizers, and the Blahut rate-distortion algorithm. Examples based on real multimedia data are also included, together with end-of-chapter problems to test understanding; algorithms that allow the reader to represent speech and audio signals efficiently; and an appendix on the basics of lossless coding. With an excellent balance of theory and practice, this book is ideal for undergraduate and graduate students, and is also a useful reference for practitioners.

Irina Bocharova is an Associate Professor at the Saint Petersburg State University of Information Technologies, Mechanics, and Optics. She has published over 50 technical papers and is the co-inventor of seven US patents in speech, video, and audio coding. Her current research interests include convolutional codes, communication systems, source coding and its applications to speech, audio, and image coding.