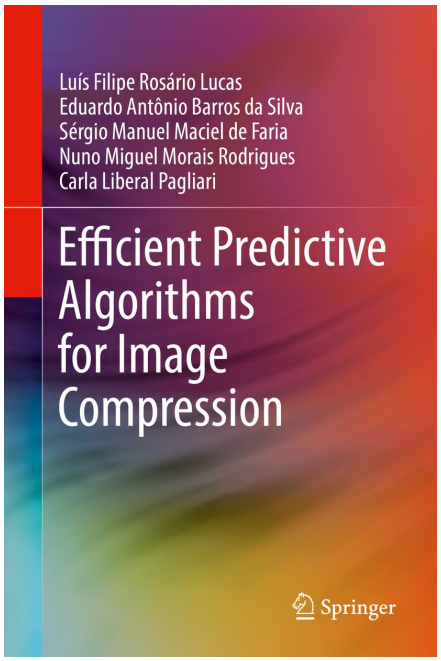

Springer

1st edition

1st ed. 2017, XIX, 169 p. 66 illus., 24 illus. in color.

Printed book
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Hardcover
ISBN 978-3-319-51179-5
$ 149,99
Available

Discount group
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Softcover
ISBN 978-3-319-84588-3

Engineering : Circuits and Systems

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Efficient Predictive Algorithms for Image Compression

- Presents a state-of-the-art review of existing prediction technologies for compression of both 2D and 3D multimedia content
- Discusses the most recent advances beyond the current, standardized technologies for image and video compression, such as using the HEVC standard in the context of natural images, 3D and Light Field content
- Includes new prediction methods based on alternative techniques and concepts, including flexible block partitioning, linear prediction, sparse representation

This book discusses efficient prediction techniques for the current state-of-the-art High Efficiency Video Coding (HEVC) standard, focusing on the compression of a wide range of video signals, such as 3D video, Light Fields and natural images. The authors begin with a review of the state-of-the-art predictive coding methods and compression technologies for both 2D and 3D multimedia contents, which provides a good starting point for new researchers in the field of image and video compression. New prediction techniques that go beyond the standardized compression technologies are then presented and discussed. In the context of 3D video, the authors describe a new predictive algorithm for the compression of depth maps, which combines intra-directional prediction, with flexible block partitioning and linear residue fitting. New approaches are described for the compression of Light Field and still images, which enforce sparsity constraints on linear models. The Locally Linear Embedding-based prediction method is investigated for compression of Light Field images based on the HEVC technology. A new linear prediction method using sparse constraints is also described, enabling improved coding performance of the HEVC standard, particularly for images with complex textures based on repeated structures.

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ISBN 978-3-319-51179-5 / BIC: TJFC / SPRINGER NATURE: SCT24068