

Advances in Intelligent and Soft Computing

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Image Processing and Communications Challenges 3

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Foreword

This book was written to inform prospective readers of current trends in image processing and communications area. Image processing and communications represent a dynamic part of computer science, playing increasingly important role in an information era. Both are interdisciplinary areas, where researchers and practitioners may find interesting problems which can be successfully solved.

This book is a collection of carefully selected chapters presenting the fundamental theory and practice of various aspects of image data processing and communications. This book offers a fresh approach to image processing & communications and the aim of this book is to show challenges in these fields. This book presents articles on actual problems of research and application of image processing and communications technologies, especially the new approaches, in: image processing and computer vision; telecommunications networks, Web-based information systems; mathematical methods for these applications.

The book consists of two sections:

1. Image processing
2. Communications.

The image processing section of this book concentrates mainly on theories and methodologies as well as the emerging applications of image processing. Various aspects of new trends and techniques in this field are discussed in the book, covering the following topics:

- Biometrics
- Low level processing
- Motion, stereo and tracking
- Pattern Recognition
- Video
- Medical Image Analysis
- Applications.

The book summarises new developments in these topics. Overall, the book explores the use of feature extraction, image enhancement, visual motion analysis and processing, color models, segmentation, shape, object tracking, principal components analysis (PCA) and linear discriminants, Bayes classifiers, watermarking and encryption, compression, view-based representation.

Each contributed paper was carefully reviewed. Many people participated in the editing process of the book. We want to thank Adam Marchewka and Karolina Skowron for valuable contributions. Finally, the editor wishes to thank all contributing authors and reviewers.

Bydgoszcz,
September 2011

Ryszard S. Choraś

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