ADVANCED VIDEO CODING FOR NEXT-GENERATION MULTIMEDIA SERVICES

Edited by **Yo-Sung Ho**

Advanced Video Coding for Next-Generation Multimedia Services
http://dx.doi.org/10.5772/45846
Edited by Yo-Sung Ho

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Published by InTech

Janeza Trdine 9, 51000 Rijeka, Croatia

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Publishing Process Manager Ana Pantar

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Cover InTech Design team

First published December, 2012

Printed in Croatia

A free online edition of this book is available at www.intechopen.com

Additional hard copies can be obtained from orders@intechopen.com

Advanced Video Coding for Next-Generation Multimedia Services, Edited by Yo-Sung Ho

p. cm.

ISBN 978-953-51-0929-7

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Preface

In recent years, various multimedia services have become available and the demand for high-quality visual information is growing rapidly. Digital image and video data are considered as valuable assets in the modern era. Like many other recent developments, image and video coding techniques have been advanced significantly during the last decade. Several international activities have been carried out to develop image and video coding standards, such as MPEG and H.264/AVC, to provide high visual quality while reducing storage and transmission requirements.

This book aims to bring together recent advances and applications of video coding. All chapters can be useful for researchers, engineers, graduate and postgraduate students, experts in this area, and hopefully also for people who are generally interested in video coding. The book includes nine carefully selected chapters. The chapters deal with advanced compression techniques for multimedia applications, concerning recent video coding standards, high efficiency video coding (HEVC), multiple description coding, region of interest (ROI) coding, shape compensation, error resilient algorithms for H.264/AVC, wavelet-based coding, facial video coding, and hardware implementations. This book provides several useful ideas for your own research and helps to bridge the gap between the basic video coding techniques and practical multimedia applications. We hope this book is enjoyable to read and will further contribute to video coding.

This book is divided in three parts and has nine chapters in total. All the parts of the book are devoted to novel video coding algorithms and techniques for multimedia applications. First four chapters in Part 1 describe new advances in the state-of-the-art video coding techniques, such as lossless high efficiency video coding (HEVC), multiple description video coding, region of interest video coding, and shape compensation methods. Part 2 concentrates on channel-friendly video coding techniques for real-time communications and data transmission, including error reconstruction over the wireless packet-switched network, optimal rate allocation for wavelet-based video coding, and facial video coding using the side view. Part 3 is dedicated to the architecture design and hardware implementation of video coding schemes.

The editor would like to thank the authors for their valuable contribution to this book, and the editorial assistance provided by the INTECH publishing process managers Ms. Ana Pantar and Ms. Sandra Bakic. Last but not least, the editor's gratitude extends to the anonymous manuscript processing team for their arduous formatting work.

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