

1. Record Nr.	UNINA9911020231103321
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Titolo	H.264 and MPEG-4 video compression : video coding for next generation multimedia / / Iain E. G. Richardson
Pubbl/distr/stampa	Chichester ; ; Hoboken, NJ, : Wiley, c2003
ISBN	9786610272457 9781280272455 1280272457 9780470346396 0470346396 9780470869604 0470869607 9780470869611 0470869615
Descrizione fisica	1 online resource (307 p.)
Disciplina	006.6/96 621.388
Soggetti	H.263 (Video coding standard) MPEG (Video coding standard) Video compression Coding theory Multimedia systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [277]) and index.
Nota di contenuto	H.264 and MPEG-4 Video Compression; Contents; About the Author; Foreword; Preface; Glossary; 1 Introduction; 1.1 The Scene; 1.2 Video Compression; 1.3 MPEG-4 and H.264; 1.4 This Book; 1.5 References; 2 Video Formats and Quality; 2.1 Introduction; 2.2 Natural Video Scenes; 2.3 Capture; 2.3.1 Spatial Sampling; 2.3.2 Temporal Sampling; 2.3.3 Frames and Fields; 2.4 Colour Spaces; 2.4.1 RGB; 2.4.2 YCbCr; 2.4.3 YCbCr Sampling Formats; 2.5 Video Formats; 2.6 Quality; 2.6.1 Subjective Quality Measurement; 2.6.2 Objective Quality Measurement; 2.7 Conclusions; 2.8 References; 3 Video Coding Concepts

3.1 Introduction 3.2 Video CODEC; 3.3 Temporal Model; 3.3.1 Prediction from the Previous Video Frame; 3.3.2 Changes due to Motion; 3.3.3 Block-based Motion Estimation and Compensation; 3.3.4 Motion Compensated Prediction of a Macroblock; 3.3.5 Motion Compensation Block Size; 3.3.6 Sub-pixel Motion Compensation; 3.3.7 Region-based Motion Compensation; 3.4 Image model; 3.4.1 Predictive Image Coding; 3.4.2 Transform Coding; 3.4.3 Quantisation; 3.4.4 Reordering and Zero Encoding; 3.5 Entropy Coder; 3.5.1 Predictive Coding; 3.5.2 Variable-length Coding; 3.5.3 Arithmetic Coding 3.6 The Hybrid DPCM/DCT Video CODEC Model 3.7 Conclusions; 3.8 References; 4 The MPEG-4 and H.264 Standards; 4.1 Introduction; 4.2 Developing the Standards; 4.2.1 ISO MPEG; 4.2.2 ITU-T VCEG; 4.2.3 JVT; 4.2.4 Development History; 4.2.5 Deciding the Content of the Standards; 4.3 Using the Standards; 4.3.1 What the Standards Cover; 4.3.2 Decoding the Standards; 4.3.3 Conforming to the Standards; 4.4 Overview of MPEG-4 Visual/Part 2; 4.5 Overview of H.264 / MPEG-4 Part 10; 4.6 Comparison of MPEG-4 Visual and H.264; 4.7 Related Standards; 4.7.1 JPEG and JPEG2000; 4.7.2 MPEG-1 and MPEG-2 4.7.3 H.261 and H.263 4.7.4 Other Parts of MPEG-4; 4.8 Conclusions; 4.9 References; 5 MPEG-4 Visual; 5.1 Introduction; 5.2 Overview of MPEG-4 Visual (Natural Video Coding); 5.2.1 Features; 5.2.2 Tools, Objects, Profiles and Levels; 5.2.3 Video Objects; 5.3 Coding Rectangular Frames; 5.3.1 Input and Output Video Format; 5.3.2 The Simple Profile; 5.3.3 The Advanced Simple Profile; 5.3.4 The Advanced Real Time Simple Profile; 5.4 Coding Arbitrary-shaped Regions; 5.4.1 The Core Profile; 5.4.2 The Main Profile; 5.4.3 The Advanced Coding Efficiency Profile; 5.4.4 The N-bit Profile 5.5 Scalable Video Coding 5.5.1 Spatial Scalability; 5.5.2 Temporal Scalability; 5.5.3 Fine Granular Scalability; 5.5.4 The Simple Scalable Profile; 5.5.5 The Core Scalable Profile; 5.5.6 The Fine Granular Scalability Profile; 5.6 Texture Coding; 5.6.1 The Scalable Texture Profile; 5.6.2 The Advanced Scalable Texture Profile; 5.7 Coding Studio-quality Video; 5.7.1 The Simple Studio Profile; 5.7.2 The Core Studio Profile; 5.8 Coding Synthetic Visual Scenes; 5.8.1 Animated 2D and 3D Mesh Coding; 5.8.2 Face and Body Animation; 5.9 Conclusions; 5.10 References; 6 H.264/MPEG-4 Part 10 6.1 Introduction

Sommario/riassunto

Following on from the successful MPEG-2 standard, MPEG-4 Visual is enabling a new wave of multimedia applications from Internet video streaming to mobile video conferencing. The new H.264 'Advanced Video Coding' standard promises impressive compression performance and is gaining support from developers and manufacturers. The first book to cover H.264 in technical detail, this unique resource takes an application-based approach to the two standards and the coding concepts that underpin them. Presents a practical, step-by-step, guide to the MPEG-4 Visual and H.264 standards for video com