Algorithms, Complexity
Analysis and VLSI
Architectures for MPEG-4
Motion Estimation

Peter Kuhn

# <u>Algorithms Complexity Analysis And Vlsi Architectures</u> <u>For Mpeg 4 Motion Estimation</u>

**Ebroul Izquierdo** 

# Algorithms Complexity Analysis And Vlsi Architectures For Mpeg 4 Motion Estimation:

Algorithms, Complexity Analysis and VLSI Architectures for MPEG-4 Motion Estimation Peter M.

Kuhn, 2013-06-29 MPEG 4 is the multimedia standard for combining interactivity natural and synthetic digital video audio and computer graphics Typical applications are internet video conferencing mobile videophones multimedia cooperative work teleteaching and games With MPEG 4 the next step from block based video ISO IEC MPEG 1 MPEG 2 CCITT H 261 ITU T H 263 to arbitrarily shaped visual objects is taken This significant step demands a new methodology for system analysis and design to meet the considerably higher flexibility of MPEG 4 Motion estimation is a central part of MPEG 1 2 4 and H 261 H 263 video compression standards and has attracted much attention in research and industry for the following reasons it is computationally the most demanding algorithm of a video encoder about 60 80% of the total computation time it has a high impact on the visual quality of a video encoder and it is not standardized thus being open to competition Algorithms Complexity Analysis and VLSI Architectures for MPEG 4 Motion Estimation covers in detail every single step in the design of a MPEG 1 2 4 or H 261 H 263 compliant video encoder Fast motion estimation algorithms Complexity analysis tools Detailed complexity analysis of a software implementation of MPEG 4 video Complexity and visual quality analysis of fast motion estimation algorithms within MPEG 4 Design space on motion estimation VLSI architectures Detailed VLSI design examples of 1 a high throughput and 2 a low power MPEG 4 motion estimator Algorithms Complexity Analysis and VLSI Architectures for MPEG 4 Motion Estimation is an important introduction to numerous algorithmic architectural and system design aspects of the multimedia standard MPEG 4 As such all researchers students and practitioners working in image processing video coding or system and VLSI design will find this book of interest **Pervasive Communications Handbook** Syed Ijlal Ali Shah, Mohammad Ilyas, Hussein T. Mouftah, 2017-09-29 In an emergency availability of the pervasive communications environment could mean the difference between life and death Possibly one of the first guides to comprehensively explore these futuristic omnipresent communications networks the Pervasive Communications Handbook addresses current technology i e MAC protocols and P2P based VoD architecture and developments expected in the very near future when most people and places will be virtually connected through a constant and perpetual exchange of information This monumental advance in communications is set to dramatically change daily life in areas ranging from healthcare transportation and education to commerce and socialization With contributions from dozens of pioneering experts this important reference discusses one to one one to many and many to one exchanges of information Organized by the three key aspects technology architecture and applications the book explores enabling technologies applications and services location and mobility management and privacy and trust Citing the technology s importance to energy distribution home automation and telecare among other areas it delves into topics such as quality of service security efficiency and reliability in mobile network design and environment interoperability Advances in Computer Systems Architecture Thambipillai Srikanthan, Jingling

Xue, 2005-10-13 This book constitutes the refereed proceedings of the 10th Asia Pacific Computer Systems Architecture Conference ACSAC 2005 held in Singapore in October 2005 The 65 revised full papers presented were carefully reviewed and selected from 173 submissions. The papers are organized in topical sections on energy efficient and power aware techniques methodologies and architectures for application specific systems processor architectures and microarchitectures high reliability and fault tolerant architectures compiler and OS for emerging architectures data value predictions reconfigurable computing systems and polymorphic architectures interconnect networks and network interfaces parallel architectures and computation models hardware software partitioning verification and testing of complex architectures architectures for secured computing simulation and performance evaluation architectures for emerging technologies and applications and memory systems hierarchy and management Motion Estimation for Video Coding Indrajit Chakrabarti, Kota Naga Srinivasarao Batta, Sumit Kumar Chatterjee, 2015-01-13 The need of video compression in the modern age of visual communication cannot be over emphasized This monograph will provide useful information to the postgraduate students and researchers who wish to work in the domain of VLSI design for video processing applications In this book one can find an in depth discussion of several motion estimation algorithms and their VLSI implementation as conceived and developed by the authors It records an account of research done involving fast three step search successive elimination one bit transformation and its effective combination with diamond search and dynamic pixel truncation techniques Two appendices provide a number of instances of proof of concept through Matlab and Verilog program segments In this aspect the book can be considered as first of its kind. The architectures have been developed with an eye to their applicability in everyday low power handheld appliances including video camcorders and smartphones Advances in multimedia information processing, PCM 2002 [electronic resource] Yung-Chang Chen, Long-Wen Chang, Chiou-Ting Hsu, 2002-12-04 This book constitutes the refereed proceedings of the Third IEEE Pacific Rim Conference on Multimedia PCM 2002 held in Hsinchu Taiwan in December 2002 The 154 revised full papers presented were carefully reviewed and selected from 224 submissions The papers are organized in topical sections on mobile multimedia digitial watermarking and data hiding motion analysis mulitmedia retrieval techniques image processing mulitmedia security image coding mulitmedia learning audio signal processing wireless multimedia streaming multimedia systems in the Internet distance education and multimedia Internet security computer graphics and virtual reality object tracking face analysis and MPEG 4 Advances in Multimedia Information Processing — PCM 2002 Yung-Chang Chen, Long-Wen Chang, Chiou-Ting Hsu, 2003-08-03 This book constitutes the refereed proceedings of the Third IEEE Pacific Rim Conference on Multimedia PCM 2002 held in Hsinchu Taiwan in December 2002 The 154 revised full papers presented were carefully reviewed and selected from 224 submissions The papers are organized in topical sections on mobile multimedia digitial watermarking and data hiding motion analysis mulitmedia retrieval techniques image processing mulitmedia security image coding mulitmedia learning audio

signal processing wireless multimedia streaming multimedia systems in the Internet distance education and multimedia Internet security computer graphics and virtual reality object tracking face analysis and MPEG 4 **Advances in Image** and Video Technology Domingo Mery, Luis Rueda, 2007-12-07 This book constitutes the refereed proceedings of the Second Pacific Rim Symposium on Image and Video Technology PSIVT 2007 held in Santiago Chile in December 2007 The 75 revised full papers presented together with four keynote lectures were carefully reviewed and selected from 155 submissions The symposium features ongoing research including all aspects of video and multimedia both technical and artistic perspectives and both theoretical and practical issues Advances in Computer Vision and Information Technology, 2013-12-30 The latest trends in information technology represent a new intellectual paradigm for scientific exploration and the visualization of scientific phenomena This title covers the emerging technologies in the field Academics engineers industrialists scientists and researchers engaged in teaching and research and development of computer science and information technology will find the book useful for their academic and research work **Digital Media Processing For** Multimedia Interactive Services, Proceedings Of The 4th European Workshop On Image Analysis For Multimedia **Interactive Services** Ebroul Izquierdo, 2003-03-21 This volume contains papers describing state of the art technology for advanced multimedia systems It presents applications in broadcasting copyright protection of multimedia content image indexing and retrieval and other topics related to computer vision The proceedings have been selected for coverage in Index to Scientific Technical Proceedings ISTP ISI Proceedings Index to Scientific Technical Proceedings ISTP CDROM version ISI Digital Media Processing for Multimedia Interactive Services Ebroul Izquierdo, 2003 This volume Proceedings contains papers describing state of the art technology for advanced multimedia systems It presents applications in broadcasting copyright protection of multimedia content image indexing and retrieval and other topics related to computer vision The proceedings have been selected for coverage in Index to Scientific Technical Proceedings ISTP ISI Proceedings Index to Scientific Technical Proceedings ISTP CDROM version ISI Proceedings

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