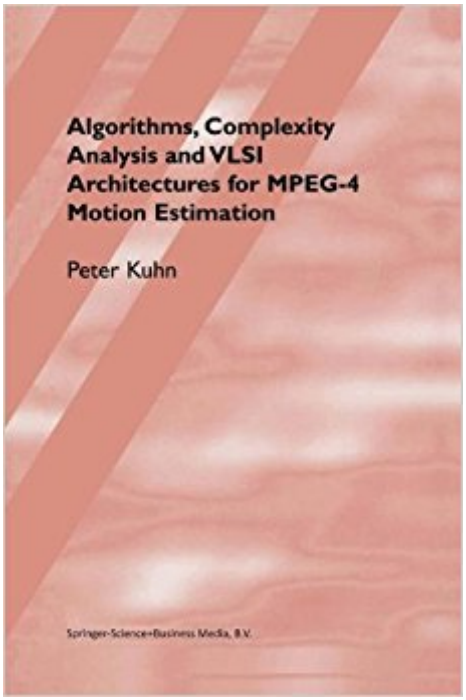
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Algorithms, Complexity Analysis And VLSI Architectures For MPEG-4 Motion Estimation



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Synopsis

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.

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Customer Reviews

For mpeg4 motion estimation, it is the only book on the market that well explains and covers with complete algorithms analysis. The references of the papers for each chapter give you more clues about the each algorithm implementation. I would recommend also reference to ISO/IEC 14496-5 MPEG4 codec software and specs to help you understand MPEG4 codec in digital video processing and implementation on streaming media

an exceleent book with deep investigation on motion estimation. you can find most algorithms proposed before with complete references. The author also provides a profiling tool which is so efficent for complexity analysis. you will be able to benefit it definitly :)

You’re looking for the alogritm of making video confrence, orany video transfer, this is the book for you! While reading youunderstand where the price coming from! The Author knows the matterialvery well, and lets the reader to understand the mpeg-4 technology!

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