

Real-time video compression

Article · January 1997

CITATIONS
13

READS
966

2 authors, including:



[Raymond Westwater](#)
ZPEG, Inc

33 PUBLICATIONS **272** CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



ZPEG Video Technology [View project](#)

Raymond Westwater
Borko Furht

Florida Atlantic University

KLUWER ACADEMIC PUBLISHERS
Boston / Dordrecht / London

IPR2018-01413
Sony EX1012 Page 2

Library of Congress Cataloging-in-Publication Data

A C.I.P. Catalogue record for this book is available
from the Library of Congress.

Copyright © 1997 by Kluwer Academic Publishers

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher, Kluwer Academic Publishers, 101 Philip Drive, Assinippi Park, Norwell, Massachusetts 02061

Printed on acid-free paper.

Printed in the United States of America

IPR2018-01413
Sony EX1012 Page 3

1.2 Applications of Compressed Video	6
1.3 Image and Video Formats	8
1.4 Overview of the Book	12
2. The MPEG Video Compression Standard	15
2.1 MPEG Encoder and Decoder	15
2.2 MPEG Data Stream	18
3. The H.261/H.263 Compression Standard for Video Telecommunications	23
3.1 Picture Formats for H.261/H.263 Video Codecs	24
3.2 H.261/H.263 Video Encoder	25
3.3 H.261/H.263 Video Decoder	28
4. The XYZ Video Compression Algorithm	29
4.1 XYZ Compression Algorithm	29
4.2 XYZ Decompression Algorithm	32
5. The Discrete Cosine Transform	37
5.1 Behavior of the DCT	37
5.2 Fast One-dimensional DCT Algorithms	40
5.3 Two-dimensional DCT Algorithms	47
5.4 Inverse DCT Algorithms	50

IPR2018-01413
Sony EX1012 Page 4

6.4 Adding Human Visual Factors	67
7. Entropy Coding	73
7.1 Huffman Coding	73
7.2 Use of Entropy Coding in JPEG and MPEG	76
7.3 Adaptive Huffman Coding	78
8. VLSI Architectures of the XYZ Video Codec	83
8.1 Complexity of the Video Compression Algorithms	83
8.2 From Algorithms to VLSI Architectures	86
8.3 Classification of Video Codec VLSI Architectures	87
8.4 Implementation of the XYZ Video Compression Algorithm	90
8.5 Adaptive XYZ Codec Using Mesh Architecture	103
8.6 XYZ Codec Based on Fast 3D DCT Coprocessor	111
9. Experimental Results Using XYZ Compression	123
9.1 PC Implementation	124
9.2 MasPar Implementation	138
9.3 Non-adaptive XYZ Compression	144
10. Conclusion	151
Bibliography	155
Index	163

IPR2018-01413
Sony EX1012 Page 5

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.