



LIBRARY OF CONGRESS

Office of Business Enterprises
Duplication Services Section

THIS IS TO CERTIFY that the collections of the Library of Congress contain a bound volume entitled **REAL-TIME VIDEO COMPRESSION Techniques and Algorithms**, call number QA76.575.W47 1997, Copy 2, The attached – Cover Page, Title Page, Copyright Page, Table of Contents Pages, Preface page, Chapters 1,2,3 and Chapter 7 - are a true and complete representation from that work.

THIS IS TO CERTIFY FURTHER, that work is marked with a Library of Congress Copyright Office stamp dated November 25, 1996.

IN WITNESS WHEREOF, the seal of the Library of Congress is affixed hereto on May 18, 2018.

Deirdre Scott
Business Enterprises Officer
Office of Business Enterprises
Library of Congress



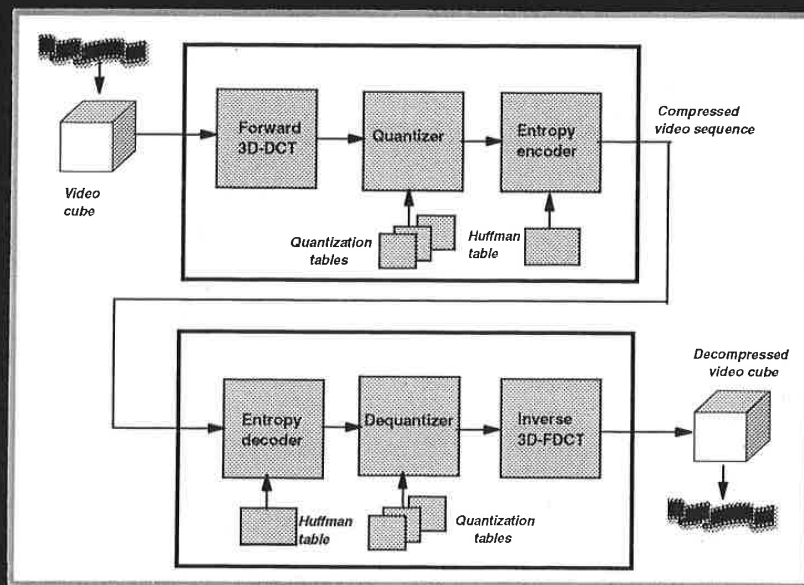
QA 76
.575
.W47
1997
Copy 2

FT MEADE
GenCol1

REAL-TIME VIDEO COMPRESSION

Techniques and Algorithms

Raymond Westwater
Borko Furht



REAL-TIME VIDEO COMPRESSION
Techniques and Algorithms

by

Raymond Westwater
Borko Furht
Florida Atlantic University

KLUWER ACADEMIC PUBLISHERS
Boston / Dordrecht / London

Distributors for North America:

Kluwer Academic Publishers
101 Philip Drive
Assinippi Park
Norwell, Massachusetts 02061 USA

QA76
.575
W47
1997
COPY 2

Distributors for all other countries:

Kluwer Academic Publishers Group
Distribution Centre
Post Office Box 322
3300 AH Dordrecht, THE NETHERLANDS



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

96-38469

CONTENTS

PREFACE	vii
1. THE PROBLEM OF VIDEO COMPRESSION	1
1.1 Overview of Video Compression Techniques	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

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.