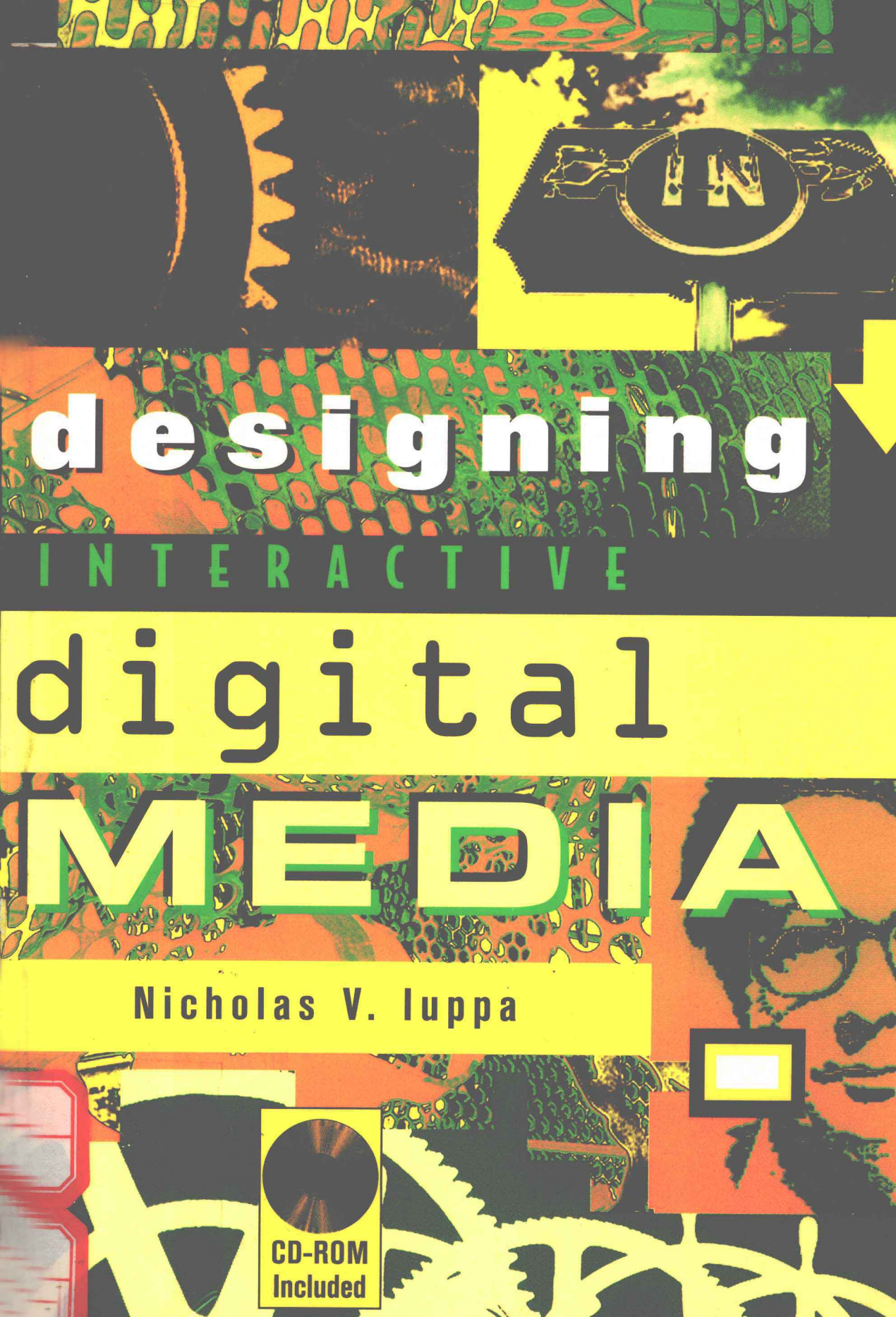
designing
INTERACTIVE
digital
MEDIA
Nicholas V. Iuppa
CD-ROM
Included

Designing Interactive Digital Media

Nick Iuppa

Focal Press
Boston • Oxford • Johannesburg • Melbourne • New Delhi • Singapore

Focal Press is an imprint of Butterworth-Heinemann.

A member of the Reed Elsevier group

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Library of Congress Cataloging-in-Publication Data
Iuppa, Nicholas V.
Designing interactive digital media / Nicholas V. Iuppa.
p. cm.
Includes index.
ISBN 0-240-80287-X (pbk.: alk. paper)
1. Interactive multimedia. 2. Digital video. I. Title.
QA 76.76.I59I97 1997
006.7—dc21 97-3003
CIP

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library.

The publisher offers special discounts on bulk orders of this book.
For information, please contact:
Manager of Special Sales
Butterworth–Heinemann
225 Wildwood Avenue
Woburn, MA 01801-2041
Tel: 617-928-2500
Fax: 617-928-2620

For information on all Focal Press publications available, contact our World Wide Web home page at: http://www.bh.com/focalpress

10 9 8 7 6 5 4 3 2 1

Printed in the United States of America

Designing Interactive Digital Media

To

Ginny,

for years of helping me chase those
interactive rainbows

Case sat in the loft with the dermatrodes strapped across his forehead watching motes dance in the diluted sunlight that filtered through the grid overhead. A countdown was in progress in one corner of the monitor screen.

And one and two and—Cyberspace slid into existence. . . .

—William Gibson, *Neuromancer*
1984

About the Author

Nick Iuppa is one of the premier designers of interactive media. His works include highly successful and award-winning games, instructional material, point-of-sale systems, and entertainment productions. He has worked for world-renowned entertainment companies, like Walt Disney Productions and Paramount Pictures, and Silicon Valley Giants, like Hewlett-Packard and Apple Computer.

After graduation from the University of Notre Dame and Stanford University with degrees in communication, Nick went to Hollywood to work with famed animation director Chuck Jones and celebrated children's author Ted Geisel (Dr. Seuss) on *How the Grinch Stole Christmas.*

Nick left Chuck Jones when MGM closed its animation unit and joined Walt Disney Productions. There he worked in the Disney Story Department on several award-winning television programs for *The Wonderful World of Disney.* Later, as a freelancer, Nick designed and wrote dozens of educational films, games, and multimedia kits for Walt Disney, including such best-selling series as *Winnie the Pooh and the Value of Things* and *Growing Up Healthy*.

Nick moved into the corporate world, where, as vice-president and head of creative services for Bank of America, he supervised the production of hundreds of instructional and educational videotapes and wrote and produced *People Skills,* one of the first major interactive video presentations used in corporate training.

Nick continued to mix entertainment, educational, and instructional programs as he designed and wrote a series of interactive video games and mysteries for Worlds of Wonder, the toy company that created Teddy Ruxpin, Laser Tag, and other toy sensations.

In 1983 Nick became vice-president of Media production at ByVideo, a creation of Atari founder Nolan Bushnell. The high-profile ByVideo Shopping Company brought Nick and his colleagues international recognition for their design of an automated, computerized shopping process.

In the 1980s and early 1990s Nick worked for both Apple Computer and Hewlett-Packard as a designer, writer, and manager of interactive media devel-

opment. His projects included interactive broadcasts, advanced learning simulations, and instructional games.

Recruited by Paramount/Viacom in 1993, Nick turned his attention to designing original stories and other content for Viacom Interactive Services. Still with Paramount today, Nick is vice-president and creative director at Paramount Digital Entertainment, where he designs and creates original entertainment programming and manages a staff of highly skilled designers, developers, and artists.

Nick has written four books on interactive media design and development. He also presented his theories on managing creative people in the humorous compendium entitled *Management by Guilt,* published by Fawcett.

Nick has been married for over 30 years to Virginia Iuppa, a junior high school teacher. They make their home in Northern California. Two of their three children also work for major developers of interactive media.

Contents

I

Background and Overview

1

The Possibilities

Very surprisingly, before the World Wide Web, CD-ROMs, or even digital video existed there was *interactive video*, an exciting, if unfulfilled, technology that was the precursor to audio compact discs and digital video discs (DVDs). It was delivered on laser discs that often carried computer control programming in the second audio channel of the disc itself. Interactive video is a good place to start our exploration of interactive digital media, perhaps for no other reason than it was there right at the start.

In the early 1980s, people looked at the interactive video they were flipping through on their laser discs and thought that it was digital. The thinking may have come from advertisements for laser discs or other media that tried to cash in on "digital," one of the great buzzwords of our times.

The truth is that the technology that laser discs used was digital. The video was not. Up until very, very recently no one was able to mass-produce high-quality video using digital technology—not in a way that could find a mass audience with the appropriate playback equipment waiting on the other end.

So, for over a decade, interactive video has been produced either in very primitive, low-quality, and limiting digital formats or in analog formats that allow users to manipulate only *chunks* of video in a rather "clunky" form of branching. The fact that interactive video pioneers had to resort to low-quality digital video or nondigital video to create interactivity may explain why the early forms of interactive video never really succeeded.

On another front, in the gaming industry, highly interactive digital formats that required *everything but video* were sharpening interactive graphic presentations and animation since the very birth of "PONG." If you twitched, the game reacted, and if you couldn't twitch fast enough, you couldn't win the game.

Nevertheless, these twitch games (in spite of their great popularity in an enthusiast's marketplace) were outside the monster markets that were capable of bringing boundless profits to companies engaging in, say, television. What seemed to be missing in twitch games was video, but every time game companies tried to bring real video (analog or digital) into their games it either slowed the game down too much or changed its character so completely that they were not able to achieve

the effects they wanted. As of now, there never really have been any true interactive *video* games with mass market success.

So far, the ten or more years of work that have gone into creating analog interactive video or limited digital interactive video have made us more and more frustrated, but still more and more aware of the design possibilities that true digital media technology will eventually bring. At last it seems we know exactly where we can go given the right technology.

And that brings us to the very topic of this book. We will look at the design of interactive digital media, the formulas and formats that have been discovered since the mid-1980s, and show how they can guide us to better use of the new fuller, richer media we now possess.

WHAT THIS BOOK WILL DO

This book will review the various digital media and their uses, placing a renewed emphasis on their ability to offer *interactivity*. We will also clarify the definition of digital media to mean more than animation, television pictures, and movie clips and begin to give serious attention to 3D environments, communications technologies, PUSH technology, high-resolution graphics, and the extreme importance of digital audio. Without getting too technical, we will look at digital video technology and see how the expansion of the capabilities of video imaging allows for greater and greater interactivity.

We will also look at the formats and formulae that have evolved since the mid-1980s, what they have taught us, and how they fit into the new capabilities that have opened up. We will study the latest delivery mechanisms for interactivity and digital media, from the World Wide Web, to CD-ROMs, to the new DVD technology, even virtual environments, and we will see how the accelerating evolution of those technologies has begun to shape the design and substance of interactive media itself. We will consider interactive television and see if, when, and where this most promising of all interactive media will arrive.

We will review some of the tools and practices of the trade of interactive design, including the creation of site maps and flowcharts and the writing of design documents. We will see how these latest forms of digital media can now be applied to entertainment, games, information systems, and education. And finally, one more time, we will look at where the whole business can take us.

But before we do any of that, to put things into true perspective, let's take a moment to look at the ultimate destination of interactive digital media. It was articulated brilliantly by Ray Bradbury in the early 1950s. I had a personal experience with that vision in a very unique way, and it is clear that I have never been the same since.

MY INTRODUCTION TO INTERACTIVE MEDIA

One of my earliest childhood memories is of a particular broadcast of the radio series *Dimension X*. I was about 6 years old. The story presented on the radio that

night was an adaptation of "The Veldt," an episode from the science fiction book *The Illustrated Man* by Ray Bradbury.*

I remember that my parents had gone out to the movies and left me alone in the house with a teenage babysitter and a great big console radio. What could I do when the girl picked up the phone and called her best pal to talk the night away? I turned on the radio.

The radio drama that was presented on *Dimension X* that night had to do with a futuristic house that offered its well-to-do owners the ultimate babysitter: a "PlayRoom" whose walls were floor-to-ceiling television screens. If the parents wanted to go out for the evening (as mine had so thoughtlessly done), they simply left their children behind to be taken care of by the latest media technology (as mine had also done).

The PlayRoom in that fabulous house had the technology to create dozens of different environments for children to play in. As far as I could tell, the children controlled their play environment by sending orders with their minds telepathically.

Of course it wasn't long before the little brother and sister in the story found their own favorite place to be (it happened to be my favorite place as well). It was sort of the domain of Tarzan, Jungle Jim, and Sheena Queen of the Jungle; it was the heart of darkest Africa, the African Veldt.

Needless to say, after the children's first night in the PlayRoom, the roaring of lions and trumpeting of elephants became common in the household. It kept the parents up every evening, and it wasn't long before they became concerned about the PlayRoom and the amount of time their children were spending there.

In the end, the parents even forbade their children to play there, locking the door and insisting that they were going to have the entire PlayRoom dismantled and sent back to the manufacturer. This, of course, is not the kind of thing that parents should do to children, at least not in a Ray Bradbury story.

Well, I was right in tune with the kids when they broke into the PlayRoom on the very last night it was part of the house. I was thrilled as they summoned up their favorite locale and saw again the prides of lions lounging in the sun and the herds of elephants lumbering across the plain. I was also in full support as they jumped out of the PlayRoom and slammed the door behind them, trapping their worried parents who had came running into their domain to see what was really going on. Remember, I, too, had been left alone to entertain myself while my parents went to the movies, and all I had to entertain me was a magical box (the radio) and the power of my own mind.

I won't spoil the story by telling you what happened to the parents as they came face to face with those elephants and lions. Instead I'll just say that the story does seem to be the best introduction any kid ever had to the concepts and the possibilities of interactive digital media.

In the story, the children were surrounded by a virtual immersive experience. Moreover, to some degree, they controlled the sequence of events. However, they did not control the effects of their choices: the interactive system answered their

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* Ray Bradbury, *The Illustrated Man* (New York: Doubleday & Co., 1958).

directives with responses of its own, much to the dismay of their parents, but to the great betterment of interactivity.

Because I heard this story when I was 6 years old and have had it in the back of my mind all my life, I find it hard to believe those critics and media experts who say the average person would rather sit passively and watch a drama than interact with a truly immersive experience. Obviously, their image of interaction (and maybe even drama) is different from mine.

Sure I'd rather watch TV passively than go through most of the kinds of interactivity that media producers have been serving up until now. But what about a simulation with the power of "The Veldt." I'm no longer of a mind to feed my parents to the lions, but I wouldn't mind sitting on a virtual beach at Kona, listening to the waves, watching the sunset, having the experience of my own personal paradise. I think I'd prefer that to the best episode of *Seinfeld* any day of the week. And I like *Seinfeld* a lot.

2

Digital Victory

It may seem almost unnecessary to talk about the shift from analog to digital video. The stage was dramatically set by the emergence of computers as movie production tools, the success of CD-ROM games, such as *Myst*, and the coming expansion of network television into digital broadcasting.

It seems like many people know some part of the story of the movement to digital. The problem is that everyone knows their own particular part of the story without understanding the whole. Moreover, there is a lot of confusion over various aspects of the coming of digital video. People, who, for example, know all about consumer electronics might confuse high-definition TV with digital video or laser discs with digital video. Others might know something about multimedia computers and so confuse analog video that runs in a window on a computer screen with digital video. Likewise there are those who are involved in the broadcast or cable TV industries and so confuse interactive television with digital video. So, for a brief moment let's look at what digital video is and what it is not and especially what digitization can bring to interactive video.

DIGITAL VIDEO ON TELEVISION

Anything digital exists because we are able to reduce it to components that are either ones or zeros. Computers work because every piece of information that exists in them has already been translated into sets of ones and zeros. Translating *video* into ones and zeros has the potential and the promise of giving us television with video images of a much higher quality than the current analog standard (though shortly we will see why this might not always be the case). Digital video also has the potential for creating a whole lot better broadcast system than the current NTSC system used to broadcast television pictures in America today.

Unfortunately, from a television broadcast point of view, making the move to digital television means replacing every single piece of functioning broadcast equipment with a new version that does things digitally. It is extremely