The Ultimate Multimedia Handbook

Jessica Keyes
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Second Edition

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This book is most appreciatively dedicated to my clients and friends, old and new, my family and my editors. In particular, I would like to dedicate this book to my Uncle, Seymour Harrison, who passed away during final edits. He was an inspiration to us all.

Foreword

It's unbelievable, but true. This book has grown by hundreds of pages. Many chapters have been added to a book already brimming with great food for thought.

The first edition of this book, *The McGraw-Hill Multimedia Handbook*, quickly became a best-seller. Some even called it the "bible" of the multimedia industry. And it was. Chock full of "hands-on" advice from the multimedia industry's most notable experts, the Handbook provided developers, managers and those just interested in the topic everything they needed to develop technically perfect and artistically creative multimedia systems.

In this second edition, renamed *The Ultimate Multimedia Handbook*, I've invited a handful of new multimedia experts as well as two fistfuls of Internet gurus to join the fray.

From where I sit, the Internet is multimedia. It's got text, imagery, video, sound, interactivity—all the elements of multimedia. Add to that a couple of high-capacity telephone lines, thousands of computers and millions of potential users, and you've got the formula for ultimate multimedia. Funny, that's the name of this book.

Preface

Multimedia and the Internet are both hot topics. But that's not the whole reason for this book. As a technologist with some 18 years experience, I can't remember a time when a set of technologies caught the minds and hearts of so many people. Myself included.

True, multimedia started life on the consumer side of the house with Nintendo and Sega taking a huge chunk out of our kids' allowances. But then something funny happened. People began to realize the potential of "sight and sound" on business.

For more than two decades we've been at the mercy of the computer's flat representation of data. Precious little insight can be gleaned from a myriad of rows and columns of multi-digit numbers. But even though a bit of multidimensionality was introduced to the process with the advent of the spreadsheet and various and sundry graphics programs, information visualization requires much more. A complete immersion of the senses.

The term *multimedia* is familiar to most. After all we used it almost everyday in grade school. That was back when multimedia meant nothing more than going to the audio-visual department to gather up the projector to view the requisite film on health for hygiene. But wait. This sounds eerily like what we're doing today. It couldn't be that Mrs. Applegate, our fourth grade teacher, was on the cutting edge of the multimedia revolution?

Well, maybe she was. For Mrs. Applegate knew full well the value of involving all of the senses in a learning experience. Information visualization isn't so very far afield from Mrs. Applegate's fourth grade classroom.

By using any combination of video, sound, graphics, and animation presents us with an unlimited vista in making the world understandable, not only to children, but to businesses, academia, and the sciences.

The human body interprets input from the five senses in parallel. A combination of sight, sound, smell, touch, and hearing enables us to react intelligently to the current situation. If multimedia is to be successful, then multimedia productions must follow this lead.

This implies some rather dramatic capabilities of the hardware and software that multimedia producers utilize. For those readers who thought that

multimedia was just a presentation with some sound or animation piped in, think again.

Multimedia requires a fluidity between system resources that, to be frank, is barely possible today. Just ask your systems administrator about the vagaries of LAN systems response and you'll begin to understand just what I'm talking about. Today most system users suffer silently at the hands of what we optimistically refer to a client/server environment. Too many users slow the system. Too much data being routed between client and server slow the system down even more.

Fortunately, our senses can easily accommodate variable speeds in populating a textual data screen. But just try that when populating a display with a video and you'll wind up with what looks like a movie made by a three-year old on a tricycle!

It's good that technology (as ever) is moving rapidly to accommodate multimedia's intense requirements. But it would be erroneous to think that "computing" is leading the way. For multimedia is actually a convergence of many industries. Publishing, consumer electronics, computing, cable and broadcast television, telephone, communications, and film have been referred to as "seven octopuses," all with tentacles in each others' pockets.

Bill Gates, Microsoft's perennially innovative chairman, has created a company whose goal is to develop a technology that will merge moving images with text and art with history. Continuum Productions, Inc. is out to create a database that combines the art, music, photographs, and historical information giving new meaning to the term *performance art*.

Where Gates' artistic vision might seem pure whimsy, the Post Office has embarked on the ultimate in practical applications of multimedia (especially for those of us who have to wait more than five minutes to get a roll of stamps). The U.S. Postal Service has introduced some high-tech multimedia kiosks that offer stamps, address-change services, and custom printing. And they're not even rude.

Perhaps the most intriguing of all multimedia applications are the ones that virtually breath. At Carnegie Mellon's Studio for Creative Inquiry, a virtual gallery is underwraps that, when completed, will permit people to take a stroll through ancient Egypt. Even more interestingly, Digital Equipment Corp. is one of the organizations whose Artificial Life & Virtual Reality Applications Group is working on something called a "virtual cadaver." Virtual cadavers provide a "body" to surgeons-in-training, where they would normally fear to tread. Dick Kelly, one of the contributors to this book, expounds on this subject in more depth later on.

But for those business users or technologists, who don't have much of a taste for cadavers, or art for that matter, and who still have multi-billions invested in enterprise systems, fear not. Multimedia is coming your way.

Oracle is one of the mostly used of all database management systems. Thousands of payroll systems, personnel systems and the like are run using Oracle's relational database model. There was a time when relational was considered "old-hat"—it just stored data. But times change. Today's Oracle

incorporates interactive multimedia services, such as electronic libraries, multimedia messaging as well as audio and video. So, even enterprise users can perform such esoteric multimedia functions as video conferencing, video on demand, and even home shopping.

All this comes at a great time because, in the past year, graphical use of the Internet is at an all-time high. Although the Internet has been around since the year of the flood (counting in computer years), it's only been the last few that graphical Web browsers have been available.

Mosaic and Netscape have changed the shape of the world. Where once Internet access meant dull text, it now means graphics, hyperlinks, JPEG, MPEG, and much more. Current estimates put its user base somewhere between 22 and 30 million end-users.

So, how do you get on the road to information visualization through multimedia and the Internet? Easy. Just turn the page. Inside you'll find the answers to the perennial questions, "where, what, when, how, and why."

The Ultimate Multimedia Handbook is not meant to be read cover to cover. You'll get more mileage out of it if you turn to the part(s) of particular interest. It is configured in a logical manner, of sorts.

In the beginning, there was a beginning. All books have one. And this book is no different. So, in part one, you'll find the basic introduction to the salient issues of multimedia: what it is and how it's used (or should be used). Don't be turned off by the word "introduction." There's some real heavy-hitters who've contributed to this part. Even the multimedia aficionado would do well to peruse this part.

In part two you'll find chapters on creating and authoring a multimedia system. Producing an effective multimedia system takes a lot more than sound and video dumping. Dumping aside, those interested in attaching sound, speech or music, or video or animation would do well to flip to part three where you'll benefit from widely diverse expertise. We've even got a composer for you.

Part four is where we tackle the heady issues of networking, virtual reality and standards. Even if you're an expert in multimedia, you'll find worthy nuggets of information here.

To use current 'Net vernacular, part five contains some really cool information on the Internet. Everything from Web design to VRML. So, surf on over.

Finally we come to part six. Although there are several compendiums of products out there, I find them overwhelming. So, in this part I've provided an "annotated" version. That is, in this part you'll find a wealth of resources that I find intriguing. Resources in the areas of authoring software, sound boards, CD-ROMs, consultants, publications, associations, clip art, clip sound and clip videos. In other words, I've sifted through tons of literature from scads of vendors and the ones listed are the ones I found to be of interest to me.

So, read on and multimediate.

Acknowledgments

This book wouldn't have been possible without the help and encouragement of many people. First of all, I'd like to thank my husband Robert without whose unwavering support this book would never have been finished. Of course, special kudos go to Debra Nencel and Andrew Pisko, my trusty assistants.

But I'd also like to thank the many contributors to this book who gave willingly of their time and expertise. These are the real heroes. I know they, as I, hope that this book will become the wings that makes multimedia fly on the wings of the Internet.

JK, New York City

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Contributors

Phil Abram *Eastman Kodak Company, Rochester, New York* (Chap. 50)
Rex J. Allen *Allen Communication, Salt Lake City, Utah* (Chap. 13)
Chris Ammen *Television Associates, Mountain View, California* (Chap. 63)
Barbara Baker *Starlight Networks, Inc., Mountain View, California* (Chap. 48)
Mel Baiada *Bluestone, Mt. Laurel, New Jersey* (Chap. 21)
Glenn Becker *NuMedia Corporation, Alexandria, Virginia* (Chap. 39)
Bob Bennett *Autodesk Multimedia, Sausalito, California* (Chap. 26)
Pam Berger *Byram Hills High School, Armonk, New York* (Chap. 14)
Peter B. Blakeney *IBM, Atlanta, Georgia* (Chap. 44)
Alan Briggs *Producer, London, England* (Chap. 52)
Tim Brock *St. Petersburg Junior College, St. Petersburg, Florida* (Chaps. 25, 51)
Red Burns *New York University, New York, New York* (Chap. 2)
Steven Bussard *Bussard & Associates, Pasadena, California* (Chaps. 56, 61)
Julie Capsambelis *St. Petersburg Junior College, St. Petersburg, Florida* (Chap. 51)
Alton Christensen *CoSA, Providence, Rhode Island* (Chap. 30)
John Colligan *Macromedia, San Francisco, California* (Chap. 43)
Cross-Industry Working Team *Reston, Virginia* (Chap. 67)
Kevin Daniel *NeoSoft Corp., Bend, Oregon* (Chap. 59)
Les Dunaway *Technology Helping People, Inc., Kennesaw, Georgia* (Chap. 40)
Joseph Dunn *Macromedia, San Francisco, California* (Chap. 43)
Dr. Schahram Dustdar *University of Art, Linz, Austria* (Chap. 54)
Mike Evans *National Semiconductor, Santa Clara, California* (Chap. 41)
Joseph Fantuzzi *Macromedia, San Francisco, California* (Chap. 43)
Jeffrey P. Geibel *GEIBEL Marketing Consulting, Belmont, Massachussetts* (Chap. 65)
Ken Gerlach *Hewlett-Packard, Cupertino, California* (Chap. 4)
Lewis Gruskin *IBM, Atlanta, Georgia* (Chap. 24)
Konstantin Guericke *Caligari Corp., Mountain View, California* (Chap. 67)
Satish Gupta *Media Vision, Fremont, California* (Chap. 9)
Harry Hallman *Corporate Media Communications, Atlanta, Georgia* (Chap. 11)
Guy Hancock *St. Petersburg Junior College, St. Petersburg, Florida* (Chap. 12)
Ray Harris *Optibase, Dallas, Texas* (Chap. 31)
David E. Hartman *St. Petersburg Junior College, St. Petersburg, Florida* (Chap. 25)
Donna Hefner *Macromedia, San Francisco, California* (Chap. 43)
Christine Hemrick *Cisco Systems, Inc., San Jose, California* (Chap. 45)
Josh Hendrix *CoSA, Providence, Rhode Island* (Chap. 30)
Jeff Hooks *St. Petersburg Junior College, St. Petersburg, Florida* (Chap. 8)

Lynn Jones *Digital Equipment Corporation, Marlboro, Massachusetts* (Chap. 64)
Roger Karr *Digital Equipment Corporation, Marlboro, Massachusetts* (Chap. 19)
Michael Kellner *Apple Computer, Santa Clara, California* (Chap. 20)
Richard V. Kelly, Jr. *Digital Equipment Corporation, Marlboro, Massachusetts* (Chap. 46)
Jessica Keyes *New Art / Techinsider, New York, New York* (Chaps. 1, 15, 68, 69)
Susan Kinnell *UCSB, Santa Barbara, California* (Chap. 14)
Paulina Knibbe *Cisco Systems, Inc., San Jose, California* (Chap. 45)
Cliff Kondratiuk *Sierra Semiconductor, British Columbia, Canada* (Chap. 27)
Lucy Lediaev *Philips Interactive Media of America, Los Angeles, California* (Chap. 22)
Claude Leglise *Intel Corporation, Santa Clara, California* (Chap. 33)
James Long *Starlight Networks, Inc., Mountain View, California* (Chap. 48)
Kirk Mahoney *Engaging Media, Houston, Texas* (Chap. 60)
Mike McGonagle *Computer Corporation of America, Los Angeles, California* (Chap. 22)
Rob Morris *V_Graph, Westtown, Pennsylvania* (Chap. 58)
Glenn K. Morrissey *Asymetrix Corporation, Bellevue, Washington* (Chap. 18)
Ken Morse *Kaleida Labs, Inc., Mountain View, California* (Chaps. 32, 47)
Kurt Mueller *Dataware Technologies, Campbridge, Massachusetts* (Chap. 23)
Jay Murray *Gateway 2000, N. Sioux City, South Dakota* (Chap. 57)
Eric Nahm *Verbex Voice Systems, Edison, New Jersey* (Chap. 55)
Jeffrey V. Nickerson *Coopers & Lybrand, Edison, New Jersey* (Chap. 50)
Mike O'Berry *St. Petersburg Junior College, St. Petersburg, Florida* (Chap. 51)
Amy Pearl *SunSoft, Mountain View, California* (Chap. 34)
Tim Picraux *Unisys Corp., Blue Bell, Pennsylvania* (Chap. 34)
Marco Pinter *Digital Media International, Sunbury, Pennsylvania* (Chap. 37)
Rudy Prokupets *Lenel Systems International, Fairport, New York* (Chap. 6)
Steven L. Raber *IBM, Atlanta, Georgia* (Chap. 3)
Bruce A. Rady *TouchVision Systems, Chicago, Illinois* (Chap. 38)
Gary Robbins *St. Petersburg Junior College, St. Petersburg, Florida* (Chap. 51)
John Sievel *Gnomon, Inc. Ashford, Connecticut* (Chap. 53)
Deborah Slater *Verbex Voice Systems, Edison, New Jersey* (Chap. 55)
Lex van Sonderen *Philips Interactive Media of America, Los Angeles, California* (Chap. 22)
Larry Strickland *St. Petersburg Junior College, St. Petersburg, Florida* (Chap. 51)
Valerie Taylor *Independent Multimedia Producer, Mountain View, California* (Chap. 63)
Serge Timacheff *Logitech, Fremont, California* (Chap. 28)
Bill Tonnies *St. Petersburg Junior College, St. Petersburg, Florida* (Chap. 51)
Prem Uppaluru *Fluent, Natick, Massachusetts* (Chap. 42)
Vince Wallsko *The Walisko Group, Washington, D.C.* (Chap. 39)
Rob Wallace *Wallace Music & Sound, Glendale, Arizona* (Chap. 36)
Joseph Weintraub *Thinking Software, Woodside, New York* (Chap. 10)
J. Alan Whiteside *Multimedia Learning, Inc., Irving, Texas* (Chaps. 7, 29)
Mary F. Whiteside *Southwestern Medical Center, University of Texas, Dallas, Texas* (Chaps. 7, 29)
Frederic M. Wilf *Elman, Wilf & Fried, Media, Pennsylvania* (Chap. 17)
Lee Wilson *National Semiconductor, Santa Clara, California* (Chap. 49)
Wing F. Wong *Coopers & Lybrand, Edison, New Jersey* (Chap. 50)
Andrew Young *Young Minds, Inc., Redlands, California* (Chap. 16)

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Multimedia Issues