
The Ultimate Multimedia Handbook

Jessica Keyes

Editor

Second Edition

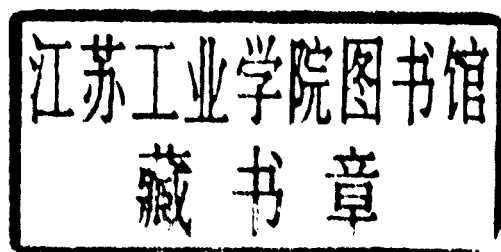
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This book is most appreciatively dedicated to my clients and friends, old and new, my family and my editors. In particular, I would like to dedicate this book to my Uncle, Seymour Harrison, who passed away during final edits. He was an inspiration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

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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

Contents

Contributors	xii
Foreword	xiv
Preface	xv
Acknowledgments	xviii

Part 1 Multimedia Issues

Chapter 1. Getting Started in Multimedia	1.3
Jessica Keyes	
Chapter 2. Cultural Identity and Integration in the New Media World	2.1
Red Burns	
Chapter 3. Tapping the Power of Multimedia	3.1
Steven L. Raber	
Chapter 4. The Virtual Classroom—A Business Necessity	4.1
Ken Gerlach	
Chapter 5. Imaging as a Corporate Multimedia Tool	5.1
Tim Picraux	
Chapter 6. Multimedia at Your Fingertips: Issues and Practical Implementations for Managing Multimedia Information	6.1
Rudy Prokupets	
Chapter 7. The Successful Multimedia Development Team: Expertise and Interaction	7.1
Mary F. Whiteside, Ph.D., and J. Alan Whiteside, Ph.D.	
Chapter 8. Virtual Reality as Multimedia	8.1
Jeff Hooks	
Chapter 9. The Multimedia Odyssey	9.1
Satish Gupta	

Chapter 10. Multimedia on a Budget Joseph Weintraub	10.1
Chapter 11. The Competitive Edge Harry Hallman	11.1
Chapter 12. Virtual Anesthesia Guy Hancock, DVM	12.1
Chapter 13. Who Had Better Be on First: Getting Optimum Results from Multimedia Training Rex J. Allen	13.1
Chapter 14. CD-ROM and Its Impact on Education Susan Kinnell and Pam Berger	14.1
Chapter 15. A Discussion on Standards Jessica Keyes	15.1
Chapter 16. CD-ROM Standards for UNIX Andrew Young	16.1
Chapter 17. Legal Aspects of Multimedia Productions Frederic M. Wilf	17.1
 Part 2 Authoring	
Chapter 18. Using Object-Oriented Tools for Faster, Easier Software Development Glenn K. Morrissey	18.3
Chapter 19. Design Considerations for Multimedia-Based Executive Information Systems Roger Karr	19.1
Chapter 20. Macintosh Multimedia Tools Michael Kellner	20.1
Chapter 21. World Wide Web Application Development Mel Baiada	21.1
Chapter 22. CD-I Developer's Source Guide Lex van Sonderen and Lucy Lediaev	22.1
Chapter 23. Corporate Guide to Optical Publishing Kurt Mueller	23.1
Chapter 24. Multimedia Consulting: A New Frontier Lewis Gruskin	24.1
Chapter 25. A Virtual Poem: Extending Classroom Reality? David E. Hartman and Tim Brock	25.1

Part 3 Animation, Video, and Sound

Chapter 26. 3D Animation Bob Bennett	26.3
Chapter 27. Technical Aspects of Multimedia Audio Cliff Kondratiuk	27.1
Chapter 28. Bringing Senses to Multimedia Serge Timacheff	28.1
Chapter 29. Using Audio in Multimedia Applications: Potential Applications and Design Considerations Mary F. Whiteside, Ph.D., and J. Alan Whiteside, Ph.D.	29.1
Chapter 30. Digital Video a la Carte Josh Hendrix and Alton Christensen	30.1
Chapter 31. Real World Applications for MPEG Digital Video Ray Harris	31.1
Chapter 32. Introduction to Digital Video and Audio Dr. Ken Morse	32.1
Chapter 33. Understanding PC Video Claude Leglise	33.1
Chapter 34. System Support for Integrated Desktop Video Conferencing Amy Pearl	34.1
Chapter 35. Voice Recognition and Voice Response Systems Mike McGonagle	35.1
Chapter 36. MIDI Means Music! Rob Wallace	36.1
Chapter 37. Multimedia and Video Editing Marco Pinter	37.1
Chapter 38. Adding Full-Motion Video to Multimedia Presentations Bruce A. Rady	38.1

Part 4 Advanced Topics in Multimedia

Chapter 39. Communications for Multimedia Glenn Becker and Vince Walisko	39.3
Chapter 40. Distributed Multimedia Requirements Les Dunaway	40.1

Chapter 41. Networks for Multimedia and Collaborative Computing Mike Evans	41.1
Chapter 42. Networking Multimedia on Standard Data Networks Dr. Prem Uppaluru	42.1
Chapter 43. Building a Standard for Cross-Platform Delivery John Colligan, Joseph Dunn, Joseph Fantuzzi, and Donna Hefner	43.1
Chapter 44. Making the Move to Distributed Multimedia Computing Peter B. Blakeney	44.1
Chapter 45. Essential Network Capabilities: Multimedia Readiness Christine Hemrick and Paulina Knibbe	45.1
Chapter 46. Virtual Reality in a Nutshell Richard V. Kelly Jr.	46.1
Chapter 47. The Design of a Multimedia Adapter Dr. Ken Morse	47.1
Chapter 48. Networking Video Applications James Long and Barbara Baker	48.1
Chapter 49. Requirements for Pervasive Multiparty Desktop Video Collaboration Les Wilson	49.1
Chapter 50. New Metaphors for Communications: What the Web makes possible Jeffrey V. Nickerson and Wing F. Wong	50.1
Chapter 51. SPJC Multimedia Case Study, Training the X Generation Cop Mike O'Berry, Tim Brock, Julie Capsambelis, Larry Strickland, Gary Robbins, and Bill Tonnies	51.1
Chapter 52. Digital Editing: The Key to Digital Production Alan Briggs	52.1
Chapter 53. Interactive 3D Graphics John Sievel	53.1
Chapter 54. Multimedia Groupware: Using Multimedia Conferencing Tools on the Internet/MBone Dr. Schahram Dustdar	54.1
Chapter 55. Speech Recognition Eric Nahm and Deborah Slater	55.1
Chapter 56. Game Play, Story Sense, and Interface Design Steven Bussard	56.1

Chapter 57. Multimedia for Technical Documentation Jay Murray	57.1
Chapter 58. The Vision is First Rob Morris	58.1
Chapter 59. Creating Electronic Publications Kevin Daniel	59.1
Chapter 60. Fitting Promotional Interactive Media on a Floppy Kirk Mahoney, Ph.D.	60.1
Chapter 61. Organizing the Interactive Company Steven Bussard	61.1
Chapter 62. A Primer on Quality and Productivity for Multimedia Producers Jessica Keyes	62.1
 Part 5 The Internet	
Chapter 63. Multimedia Impact on Web Pages Valerie Taylor	63.3
Chapter 64. Internet Access via Cable Television: High-Speed Access to Multimedia on the Worldwide Web Lynn Jones	64.1
Chapter 65. Evaluating and Implementing a Web Site into Your Integrated Marketing Program Jeffrey P. Geibel	65.1
Chapter 66. Nomadicity in the NII Cross-Industry Working Team	66.1
Chapter 67. The Web in 3D Konstantin Guericke	67.1
Chapter 68. Mainstream Internet Case Histories Jessica Keyes	68.1
Chapter 69. Internet Development in the Financial Services Community Jessica Keyes	69.1
Appendix. Keyes' Annotated Resource Guide	A.1
Contributor's Biographies	B.1
Index	I.1

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Multimedia Issues