

PREFACE

We humans quite like our little moving images and have found ways to move them outside of the box in our living rooms and into a variety of new frontiers. The key to successfully migrating video to each of these new places is compression technology. Digital video, compressed or otherwise, is all about bits. It seems like it should be easy to move those bits from one place to another, and yet it isn't. A myriad of little settings, tweaks, steps, and reasons make the process of moving video from one medium to another a frustrating pain in the neck. If you mess it up, the results are unwatchable at best and unplayable at worst. With so many possibilities as to what went wrong, troubleshooting becomes a prolonged guessing game, punctuated by panic-inducing checks of deadlines.

Sorry, I didn't mean to make you hyperventilate.

It's truly amazing how much video compression is going on right now. Kids with iPods are converting their DVD libraries to portable media, broadcasters are putting their prime-time episodes online for free, and telecoms are experimenting with HD video over broadband. Throw in the cell phones we carry that can easily handle video and the enormous video billboards we regularly see at sports stadiums and Times Square, and suddenly we find that there is an awful lot of video that needs compressing.

Now I'm the one hyperventilating.

WHAT THIS BOOK IS NOT

This book is decidedly not a technical tome on the nature of video compression and streaming media. I will not get into the science of encoding (well, maybe just a tiny bit), and I won't explain how committees of smart people

came up with the standards we use to make this all work. Yes, I will discuss some fairly complex topics, but believe me, this is just the beginning. There is a world of math and science associated with this technology, but for the most part it doesn't mean a lick if you're in the last hour of your production, trying to figure out why your encodes are failing.

Though I'll discuss some aspects of video production, this book is not about shooting the best video possible. I have been on my fair share of shoots, but I don't feel qualified to try to tell you the best way to shoot video. Plenty of other books do that. I also will not explain how to do special effects, how to edit video better, or how to troubleshoot hardware and software.

SO, WHAT IS THE BOOK ABOUT, THEN?

This book focuses on the essential information you need to get your video online, on disc, or onto some other device. Sometimes discussions in compression get bogged down in all the options available. What I'll try to do in this book is present you with some fundamentals and some best practices.

I'll start by covering the fundamentals of video and video compression, giving you the most essential background information you'll want to know. Next we'll explore the current applications you'll most likely run across while encoding your video. I'll discuss their merits and explain the most common workflows for each. Finally, I'll discuss the most common delivery media for your compressed video and use those same applications to create some specific content for various delivery media.

My hope is that by combining the fundamental information, practical knowledge about the tools of the trade, and insight into the delivery platforms, I'll leave you well armed to tackle the variety of content that's thrown your way.

But I didn't want you to hear this just from me, so I asked a variety of friends and co-workers to contribute their own insight into the world of video compression. Their profiles are intermingled with the chapters, and although they all are involved in video compression, their professions are incredibly varied.

WHO SHOULD READ THIS

If you have ever suddenly had to add video compression to your regular work responsibilities, willingly or otherwise, then this book is for you.

Video compression, encoding, and transcoding (they are all more or less the same) used to be the exclusive province of engineers who specialized in these tasks and were worried about meeting transmission specs or addressing other technical issues. Nowadays, pretty much anyone involved in the Web, traditional film and video production, and other interactive media realms will need to know at least a little bit about compression. On top of that, the Web has created a new wave of individual publishers (you know, bloggers), some of whom are getting into the video production and distribution game.

So if you were ever disappointed (or perhaps even shocked) by the results of your video compression, then read on, and I hope you find some help.

That's not to say this book is just for newbies. Although this book lays out the fundamentals of video and video encoding, it contains a variety of workflow suggestions and deliverable-specific information that can help even the most seasoned compressionists improve their games. If there is one thing I believe about this profession, it's that there is always something else to learn.

COMPANION WEB SITE

The exciting part about this industry is that the ways we use video keep changing. Of course, that's the problem with it, too. As soon as this book is published, some new whiz-bang cool thing will come out, and I won't have had a chance to include it. And like I mentioned, there is a wealth of specific information that I have intentionally left out of this book in the hopes of focusing on the basics.

Fortunately, we have the ever-dynamic Internet to keep us up-to-date, and this book has a companion Web site that will serve as both information spillover and a point of reference for breaking news. Visit www.peachpit.com/nvvideocompression/ for additional information about specific codecs, updates on the compression applications discussed in the book, and new recipes that might help you with your work. Don't just wait for the answers to come either—use the site to send in questions and comments.

ABOUT THE AUTHOR

I'm no scientist or engineer. I'm just a video geek who got into compression in a big way. My perspective on the whole topic generally comes from the point of view of actually using the medium (which I think is a good thing). This means I may not have the most thorough explanation of a given issue, but I will give you the right amount of information to get your project back on track.

I got into video compression because I graduated from college and became a video editor and producer. Because I was also geeky, I was good at doing stuff other than just going to tape with the edits. When I first started, that wasn't such a big deal, but by '97 or '98, it had become a very handy talent. I've learned everything I know about compression by screwing up repeatedly and learning from my mistakes. This, like so many professions, is all about doing it and doing it again until you get it right.

ACKNOWLEDGMENTS

I've had the privilege of meeting and working with a number of talented people in both the production and software development worlds since I decided that doing what interested me was better than finding a real job.

After 12 years on the production and interactive side of the business, I took a job as a director at Inlet Technologies, a company that creates video compression hardware and software. At first I thought Inlet hired me because I knew something about compression, but I quickly learned that everyone there had me beat, so I think they just wanted me because I think like a customer and it was easier to have me in the office than to kidnap somebody. They are a scary-smart collection of people, and I feel honored that I get to work alongside them.

But they aren't the first talented folks I've gotten to work with. Much of the video I use as examples in this book comes from the archives of Magnet Media, my previous employer and the home of Zoom In Online (*www.zoom-in.com*). Zoom In Online offers exclusive access to the latest in creative culture, entertainment, and technology through regularly published podcasts, Internet video, and blogs. All the programming on Zoom In Online features industry insiders who publish timely movie and album reviews,

event coverage, and exclusive interviews with industry insiders and original programs from the world of entertainment. The site offers free RSS subscriptions to keep viewers up-to-date in various areas of the entertainment world: film/video, music/audio, Web/interactive, and photography design. There's also a special members-only section, ZIO Pro, dedicated to creative professionals that delivers current trends, best practices, job listings, professional development courses, and an award-winning library of video-based training on how to use the latest technology for better creative results.

In addition to the people profiled in the book, a variety of other real-world compressionists I know deserve heartfelt thanks. Jem Scholfield of Buttons Production loves to mull over new announcements and prognosticate their meaning with me (and he's not afraid to split a bucket of mussels and a few pints of beer). David Randolph (now of Revision 3) has answered a variety of Avid- and SAN-related questions for me over the years, and both Alex Moseman and Dylan Lorenz have provided a wealth of workflow ideas over the past few years. Bruce Bowman, Bob Donlon, and Kristen Jiles from Adobe Systems all still take my calls, as dumb as the questions occasionally are, as do Brian Hoffman, Dennis Backus, Glenn Bulycz, Fritz Ogden, Thuy-an Julien, Patty Montesion, and Anne Renehan from Apple, Inc.

I also sorely need to thank the nice folks at Peachpit Press who have patiently waited for me to complete this book. I met Mary Sweeney and Hannah Latham while working on another project, and they were nice enough to introduce me to Karyn Johnson, who helped make this book a reality. Special bonus thanks goes to Stephen Nathans-Kelly for holding my hand during this process and making me sound like I know what I'm talking about. Brian Hoffman of Apple, Inc. served as my technical editor and helped make sure I wasn't lying anywhere. Thanks also to Jan Ozer of Doceo Publishing for his contributions in Chapter 6.

And, of course, none of this would have been possible at all without the love and support of my wife, Lisa Weisman, who is not only excited and proud of me for writing this book also sick to death of me explaining "codecs," and whatever else it is I do, and is glad I found another audience to pour this all out on. She also wishes I'd write a book on (or at least explain) why TiVo insists on taping *The Simpsons* and cooking shows we never watch yet can't remember to tape *Best Week Ever* and *The L Word* consistently. Sorry, darling, some things are just going to have to remain a mystery...