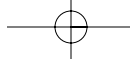




| exploring digital video |





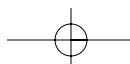
preface

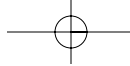
INTENDED AUDIENCE

While there are many books written about specific digital video editing software programs, there is no one book that is a comprehensive and practical guide, written specifically for the digital video novice . . . that is until now. Designed specifically as a valuable resource for students training for a career in digital video, this informative second edition will also appeal to amateur digital video editors and hobbyists. Written by an industry professional who has also taught digital video in the college classroom, *Exploring Digital Video* is the perfect blend of real-world experience and practical, informative instruction.

BACKGROUND OF THIS TEXT

Digital video is a relatively new and emerging field that is finally now coming into its own. While it is both creative and artistic, digital video requires a certain level of technical expertise to master. Many people are fascinated by this technology, but are reluctant to develop the technical skills it requires. I believe those technical skills, daunting as they may be, can be learned by anyone with a true desire to try. I was inspired to write this book by my students, who believed others could benefit from my knowledge and experience in digital video. When I first became interested in the field in the early 1990s, there wasn't any one place I could go to for information. As a result, I had to learn the hard way—trial and error. I would like to share the information I have amassed over the years with others who have a passion for this technology. While some prior computer and video experience is helpful, this book was designed to introduce digital video technology to anyone with the desire to learn more.





TEXTBOOK ORGANIZATION

Exploring Digital Video explores the fundamental concepts of DV technology and illustrates how industry professionals use this technology today in the field today. This second edition features popular professional editing programs for both the Macintosh and the PC, like Adobe After Effects, Apple's Final Cut Pro, and Adobe Premiere Pro, in addition to demonstrating must-know editing techniques like adding transitions, applying motion, using layers, and creating effects.

Chapter 1—Understanding Digital Video Technology

Chapter 1 provides a solid overview of digital video technology. It briefly discusses its history and evolution, as well as how it is currently used in the field today. It also delves into the fundamentals of traditional video, which must first be understood before digital video can be fully grasped. Chapter 1 explains the necessary terms, concepts, principles, and conventions governing digital video technology.

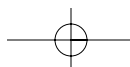


Chapter 2—Digital Video Cameras and Tape Formats

Chapter 2 will clearly explain the current videotape formats for both analog and digital video in the consumer, prosumer, and professional arenas. It will also explain the parts and functions of the digital video camera. This chapter will help readers understand and evaluate which type of digital video equipment is required to create digital video at any level.

Chapter 3—Configuring a Digital Video Computer Editing System

Chapter 3 will explain how to configure a digital video computer editing system. It will examine all of the relevant computer technology required to edit digital video at any level—consumer, prosumer, or professional. It will also discuss how to research an editing system, as well as address various budget considerations.



Chapter 4—Digital Video Preproduction

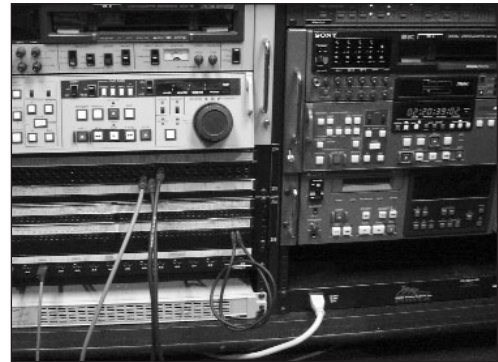
Chapter 4 will discuss the various stages of preproduction. It will examine the different styles of script writing for video, television, and film. It will also talk about how to create storyboards and production schedules. The importance of obtaining legal permission in writing to shoot video will also be emphasized.

Chapter 5—Digital Video Production

Chapter 5 will discuss the fundamental techniques of video production. Working with the video camera, framing shots, and basic lighting and basic audio will be covered. Shooting for bluescreen and greenscreen will also be addressed.

Chapter 6—Preparing Photographs for Digital Video

Chapter 6 will explain how to properly incorporate photographs into digital video without distorting them. Acquiring photographs and cropping them while maintaining image quality and resolution will be examined step by step in Adobe Photoshop. Panning photographs in Adobe After Effects, Apple's Final Cut Pro, and Adobe Premiere Pro will also be demonstrated.



Chapter 7—Incorporating Titles, Graphics, and Audio

Chapter 7 will discuss how to prepare titles, graphics, alpha channels, audio, and music for digital video. Digital video rarely consists of video alone, and this chapter will examine how to successfully incorporate these additional elements into a digital video production.

Chapter 8—Connecting Equipment and Capturing Digital Video

Chapter 8 will discuss how to connect equipment and capture digital video. It will examine how to properly cable and connect digital video cameras, video decks, and monitors to a computer editing station. It will also address the steps to capture digital video and audio in Apple's Final Cut Pro and Adobe Premiere Pro.



Chapter 9—Editing Digital Video

Chapter 9 will demonstrate basic editing techniques, like adding transitions, applying motion, using layers, and creating effects, using Adobe After Effects, Apple's Final Cut Pro, and Adobe Premiere Pro. Important concepts like understanding the project file, importing media files, using the timeline, and working with keyframes will also be addressed.

Chapter 10—Rendering and Outputting Digital Video

Chapter 10 will examine how to render a digital video project in Adobe After Effects, Apple's Final Cut Pro, and Adobe Premiere Pro. Chapter 10 will also explain how to output digital video to tape. Standards for CDs, DVDs, and video for the Internet will also be addressed.

Appendix A—Digital Video Resource Guide

This appendix will be a valuable resource, providing information about digital video-related books, magazines, Web sites, mailing lists, groups and organizations, hardware and software developers, educational classes, seminars, and workshops.

Appendix B—Digital Video Troubleshooting Guide

This appendix will address common problems that occur in digital video and how to solve them.

Appendix C—Digital Video Product Guide

This appendix will help readers evaluate digital video hardware and software at the consumer, prosumer, and professional levels.

Appendix D—ILM's Fred Meyers

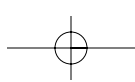
See excerpts from an exclusive interview with digital cinema expert and HD supervisor Fred Meyers of Industrial Light & Magic.

Appendix E—ILM's Ben Snow

See excerpts from an exclusive interview with Academy Award-nominated visual effects supervisor Ben Snow of Industrial Light & Magic.

Glossary

The comprehensive glossary includes traditional video, computer, and digital video terms.



Index

An in-depth index provides fast access to information.

Color Insert

A special color insert features *Star Wars: Episode II Attack of the Clones*. Learn how the *Star Wars* saga has impacted the field of digital video. Go behind the scenes with exclusive interviews of top Industrial Light & Magic personnel.

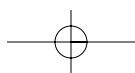
Back of Book DVD

A DVD includes digital video tutorials, software, vendor and product information, and much more, including a unique behind-the-scenes look at how the Philadelphia Eagles football franchise is using state-of-the-art digital video technology.

FEATURES

The following list provides some of the salient features of the text:

- Profiles of successful digital video professionals offer important industry advice and inspiration.
- Articles by leading professionals in the field give valuable insight into the creative process.
- Objectives clearly state the learning goals of each chapter.
- Photographs and illustrations supplement the text throughout.
- Review questions reinforce the material presented in each chapter.
- A resource guide provides contact information for groups, organizations, Web sites, training, and more.
- A troubleshooting guide addresses common digital video problems.
- A product guide features current digital video hardware and software.
- A glossary clearly defines both computer and video terminology.
- A reader-friendly index provides quick information.
- A color insert showcases how *Star Wars: Episode II Attack of the Clones* used cutting-edge digital video technology to create its special effects.
- A DVD includes software, tutorials, product information, and more, including a behind-the-scenes look at how the Philadelphia Eagles use digital video.



HOW TO USE THIS TEXT

The following features can be found throughout this book:

► Objectives

Learning Objectives start off each chapter. They describe the competencies the reader should achieve upon understanding the chapter material.

► Notes and Tips

Notes and Tips provide special hints, practical techniques, and information to the reader.

► Sidebars

Sidebars appear throughout the text, offering additional valuable information on specific topics.

objectives

- Learn how to connect digital video equipment.
- Understand how to capture video using FireWire.
- Learn how to set video capture settings.
- Learn how to capture video.
- Learn how to capture audio.

introduction

Capturing video is a lot easier today than it was not so very long ago, due to the creation of FireWire IEEE 1394. FireWire is a communications protocol that allows your computer and your digital video camera to speak the same language. Most Macintosh computers shipped come with FireWire built in. On PC computers, you need to buy a FireWire card that fits into a spare PCI slot. Most digital video cameras have FireWire analog video cameras do not, though. Because FireWire requires a digital video signal, the FireWire port works in both directions, so only one such is required to ingest and output video.

Another option is to purchase a digital video card, which slots into the PCI slot of your computer. This card will capture the analog video signal into a digital one, so you can edit it, and then send it back out as a digital signal. Some digital video cameras are made to ingest, but don't project back out in turn.

CONNECTING EQUIPMENT AND CAPTURING DIGITAL VIDEO

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32 | digital video cameras and lens formats |

TIP ZOOMS

No matter which type of lens you use, it's a good idea to invest in an extension tube, which can protect the lens from being accidentally scratched and damaged.

NOTE Most video cameras will allow you to choose between automatic focus and manual focus.



Exposure Modes

Digital cameras have automatic exposure modes that are optimized for a wide range of lighting situations. In capturing stills, you choose the mode in which you want to capture the image. In video, the camera will allow you to choose the mode, settings will adjust your exposure automatically.

Exposure is controlled by two factors, aperture and shutter speed. The aperture controls the amount of light that is let in by adjusting an opening called the iris, which changes size to let in more or less light. These two are measured in increments known as f-stops. The shutter speed of the camera controls the rate of exposure of the light. The speed of the shutter is measured in fractions of a second and typically ranges anywhere from 1/4 of a second to 1/10,000 of a second.

5 |

In audio, cassette tape is linear. To get to the fifth song on a audio cassette tape, you have to fast forward through songs one through four. In video, it's nonlinear. Technically, it takes the same amount of time to get to the fifth song as it does to the first, the second, the third, or the fourth.

Buzz Words

In digital video, nonlinear editing, and shooting video the same thing? Not so much. Digital video technology, the terminology has also evolved over the years. Nonlinear editing originally began as a term that represented a style of editing which is nonconsecutive in nature. Technically, film editing is a form of nonlinear editing. However, with the rise of digital video, the term nonlinear is now often used synonymously with professional quality digital video. Another video term that was popular in the 1990s, it was used to refer to consumer digital video editing on the computer. As the gap between consumer digital video technology (consumer video) and professional video technology (professional editing) began to close, the term digital video was abandoned in favor of digital video. Today, the term digital video encompasses many things. Technically, it is a video format that has been captured into memory form. Digital video can refer to video cameras and devices that record in video digital format. It can also refer to digital nonlinear editing or shooting video. In a broader sense, the term can encompass all digital video technology, including digital video cameras (DVCA), digital video video (DVCA), digital video and satellite servers, as well as digital video cameras and digital video editing.

RANDOM ACCESS

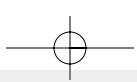
The founding principle of digital video technology is called random access (not to be confused with RAM, random-access memory). The principle of random access means that it is always the same amount of time to get to any one point in linear editing, shot A is followed by shot B, which is followed by shot C, etc. Any change in the consecutive order of the edited shots will cause a change in the amount of time. However, in nonlinear editing, because of the principle of random access, shots A, B, and C can be arranged in any order and still be viewed in the order of a sequence.

NOTE

RAM is an integrated circuit memory chip that allows data to be stored, accessed, and retrieved in any order. RAM is a computer chip, while random access is a digital video principle.

ADVANTAGES OF DIGITAL VIDEO

Nonlinear editing, or digital video as it is commonly called today, has several distinct advantages over linear editing. Nonlinear editing is faster. Changes are easier to make. Therefore, editors have more creative freedom in arranging their shots. They can easily change the editing order of their shots to see which arrangement they like best.



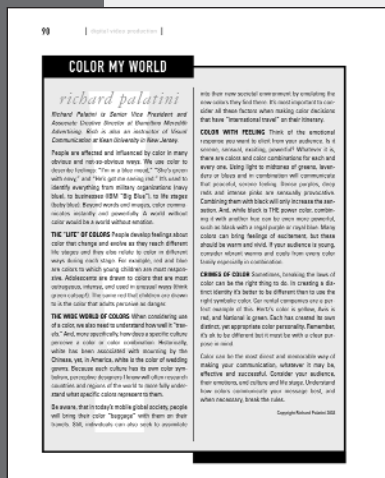
Review Questions and Exercises

Review Questions and Exercises are located at the end of each chapter and allow the reader to assess their understanding of the text. Exercises are intended to reinforce chapter material through practical application.



The DV Profile

These career profiles are interspersed throughout the text, featuring successful industry professionals using digital video technology from across the field.



Get Creative

The creative process is important for anyone in an artistic field to understand. These articles are included to help the reader understand how to tap into their creativity and get their creative juices flowing.