DEDICATED

to the memory of Vera McGrath,
who always said I could do anything I put my mind to – Trish

and to the memory of Leroy Meyer,
who taught me to be curious about how all things worked – Chris

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A number of tutorial projects are also included on this book’s DVD. See summary on page 464.
Motion graphics can involve any of a number of different tasks, from creating eye-popping special effects, to building reality-twisting commercials, to saving someone’s job by subtly repairing a shot that would otherwise be unusable. My favorite is creating compelling images from scratch that help promote or sell a show or concept. Performing this visual magic used to be far more tedious and difficult than it is today.

War Stories
It seems not that long ago that in my position as Vice President of On-Air Advertising for ABC-TV, I was struggling to inject some semblance of graphic design into our promos. It was 1966, and even though I was given the leeway to experiment graphically, the tools available then were, by comparison to today’s technology, crude and slow. Everything we tried had to go through a laborious process of hand setting type, shooting everything graphic on an animation stand, and combining the results in an optical printer. The process took days and invariably resulted in a product that was not exactly as visualized. We either settled for what we saw, or began the whole process over again. Needless to say, our resulting promotion spots for the network were not exactly graphics-intensive.

Even after teaming up with such visual effects pioneers as Douglas Trumbull and Bob Abel, and in spite of the gradual introduction of the computer into the process, our production of innovative graphics was

FOREWORD

Visual Magic
How Far We’ve Come

Harry Marks is rightfully acknowledged by many as the father of modern broadcast motion graphics. From a typography background in England, he eventually moved to Los Angeles in the mid-1960s, where he worked for both ABC and CBS as Vice President and Creative Director for On-Air Promotions. He also served as an independent consultant to NBC for six years. Harry initiated the move from animation stands to computer-generated graphics, and in doing so forever influenced what we see on television. He is an Apple Master, and was the first recipient of the Broadcast Designers Association Lifetime Achievement Award. Harry remains active to this day learning new tools and teaching them to others. He’s also an incredibly nice guy. We’re proud to have him write our foreword.

Foreword by Harry Marks

Motion graphics can involve any of a number of different tasks, from creating eye-popping special effects, to building reality-twisting commercials, to saving someone’s job by subtly repairing a shot that would otherwise be unusable. My favorite is creating compelling images from scratch that help promote or sell a show or concept. Performing this visual magic used to be far more tedious and difficult than it is today.

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Even after teaming up with such visual effects pioneers as Douglas Trumbull and Bob Abel, and in spite of the gradual introduction of the computer into the process, our production of innovative graphics was
painfully slow – and unrepeatable, thanks to unreliable computers and the variables of the film lab. But we worked with what we had, and designed and produced work that was quite startling on the screen. This helped enhance the upstart network’s image as an innovator.

In 1977 ABC moved from a perennial No. 3 in a three-way ratings race to No. 1. I’m convinced that our promotional style was in a large way responsible for the success of the network; by this time, graphics had become a major element of promotion. People were becoming aware of motion graphics, and a new industry was born.

**Enter Desktop Video**

By 1985, the desktop computer was a required device in every graphic designer’s toolbox. Some of us went a bit further and started to produce images for broadcast on our little computers. Images that had previously required the use of exotic and expensive broadcast tools were now being routinely produced on the desktop.

In my case, this was out of dire need. Those were the times of seemingly unlimited budgets, but limited facilities. Sometimes we had air time to fill and no way to produce the material to fill it with. Necessity being the mother of invention, we used our Macintoshes just to get on the air.

Software that allowed us to go further began to appear. Video capture cards made it possible for us to capture full-screen, “broadcast quality” video, albeit frame by frame, and audio tools enabled us to perform what would have been hitherto complex sound editing with ease. Before we realized it, a revolution was under way. On a limited basis, we could, on our desktops, produce video that would withstand the rigors of a broadcast engineer’s scrutiny, without ever going to an expensive facility.

The downside was that the process was sometimes treacherous and always slow. But we new desktop video enthusiasts were undaunted, and we continued, with the help of faster desktop machines, to push the envelope. While nothing could compare with the speed and quality of exotic dedicated systems housed in rooms full of creature comforts at ever more deluxe facilities, budgets were being scrutinized, and the new tools were looking interesting to producers working on a shoestring.

**Enter After Effects**

What happened next was remarkable. In Rhode Island, a small group of intensely creative people going by the name of CoSA, The Company of Science and Art, created a product for manipulating video with plans to do what nothing else could. The product, which became After Effects, had a lot of unique properties, as well as a...
baffling interface. On the positive side, it was completely resolution independent, meaning that it didn’t matter what the resolution or size or shape of the material it worked with was. And if you had the horsepower in your machine, it would output in any resolution you asked for.

The significance of this was that the television screen was no longer the boundary. After Effects could produce images for theatrical motion pictures – the big screen. In addition, the software could manipulate images with what I can only describe as exquisite precision. There’d never been anything like it before, and it still stands as the software of choice for the motion graphics industry. It’s a common mantra in the business – if you’re good with After Effects, you’ll always work. And always being able to work is a good thing.

After Effects has evolved dramatically since “The Daves” – Herbstman and Simons – led their little band of computer scientists into the demanding waters of Hollywood production. Aldus Corporation and then Adobe Systems Inc. purchased it, the interface has been dramatically improved, and it “talks” very well to other industry standard software like Adobe Photoshop and Adobe Illustrator – both essential tools for the motion graphics designer. I can’t imagine a production that somewhere and in some way doesn’t use After Effects.

In the hands of an inexperienced artist, After Effects can be nothing short of dangerous, but in the hands of a master, it’s brilliant, and all of its visual trickery is invisible to the eye. Trish and Chris Meyer are such masters; to me they are a walking, talking manual. Wherever they teach, classes are sold out. Whenever they write an article in a trade magazine, the piece gets promptly torn out of the magazine and filed like a great recipe. This is how vast their knowledge of the subject is and how invaluable their words are. I’m proud and happy to know Trish and Chris – after all, it’s good to be able to call a walking manual. I’m personally very pleased that they’ve agreed to put all of their knowledge and experience on this subject in a book, and I’m sure that if motion graphics turns out to be your chosen path, you’ll be the beneficiary of this remarkable couple’s gifts.

Harry Marks
Los Angeles, January 2000
INTRODUCTION

A Career in Creativity

How often does a single piece of software give you a new career? When we first started using the original beta version of CoSA After Effects back in 1992, professional graphics was the domain of expensive dedicated hardware. After Effects was the first desktop application that could take on and even surpass them in both quality and features.

We should have known what we were getting into when one of our first jobs with After Effects 1.1 was creating graphics for a nine-screen circle vision. By 1994, we were animating opening titles for films; most recently we worked on the titles for Cold Mountain. In between we’ve worked on opening titles and graphics packages for broadcast and cable, imagery for numerous trade shows and special events, bonus chapters for DVDs, and the occasional unusual venue such as the Jumbotron in Times Square.

Like everyone else, we knew nothing when we started. Fortunately, the motion graphics community has been distinguished by people willing to share – and we’ve tried to return the favor. In 2000, we decided to write the first edition of Creating Motion Graphics for After Effects 4.1, hoping to share how to use this great tool efficiently in the real world. It took us nine months to write it. Fortunately, a lot of you bought it, and encouraged us to keep up this mad adventure.

Creating Motion Graphics has since grown so large we have split it into two volumes: The Essentials (the book you’re holding now), which covers all of the core features you need for virtually any kind of motion graphics work, and Advanced Techniques, which delves deeper into professional topics such as working with video, film, 3D, editing systems, and tasks such as motion tracking and keying.

In addition to new chapters on Text and Animation Presets, virtually every page in this third edition has something new, be it a new feature, shortcut, or better way of working. As always, the goal is to help you master this tool, making it easier for you to realize your own creative vision.

Trish and Chris Meyer
CyberMotion

July 2004

As a companion book to Creating Motion Graphics, we have also created After Effects in Production, which puts many of the features of After Effects to work in a series of intermediate-to-advanced tutorials. It also includes a set of broadcast case studies from award-winning studios including ATTIK, Belief, Curious Pictures, The Diecks Group, and Fido, as well as our own studio, CyberMotion.
How to Use This Book

You may have heard the saying “Give me a fish; you’ve fed me for one day. Teach me how to fish; you’ve fed me for the rest of my life.” We want to teach you how to fish.

Rather than give you a series of recipes, or cover every single function and keyboard command inside After Effects (why repeat what’s already in the manual and online Help?), we feel it is more important to explain how After Effects thinks, and how we use it to solve real-world design and production challenges. Our goal is to help you understand the program so you can use it efficiently and creatively for your own tasks.

The chapters have been arranged in what we feel is a good sequence to learn the program, grouped by subject. Each chapter often assumes you have read the ones before it, or are at least familiar with their subject matter; we also cross-reference related material that appears in other chapters. If you already have some experience using After Effects, feel free to jump around to brush up on the subjects that most interest you. If you are brand new to the program, we especially recommend you start with Chapter 1, as it is a tutorial designed to give you a quick lay of the land inside After Effects, plus a taste for what it can do.

After you have mastered the concepts covered in the individual chapters, there are a number of Bonus Tutorials on the DVD that bring it all together. These tutorials consist of a PDF file with instructions, a corresponding After Effects project, and a movie of the finished piece. (A summary of these tutorials starts on page 464.)

Before teaching a technique, we continually asked ourselves, “Would we do that?” If not, we try not to waste your time showing you how to do it. Because of this philosophy, you’ll find that many of our examples include additional layers and tricks, because we would “do that.” We hope you enjoy exploring them.

What’s in a Name?
There are so many different elements in an After Effects project, we’ve tried to establish a set of typographic conventions that we hope will make it easier to understand what we are talking about and when:

- **Words in bold** refer to the specific names of folders, files, or layers you are using.
- **[Words in bold and in brackets]** are the names of compositions, as opposed to layers in a composition.
- “**Words in bold and in quotes**” are text you should enter – such as the name for a new composition or solid.
- When there is a chain of submenus or subfolders you have to navigate, we separate links in the chain with a > symbol: for example, Effect>Adjust>Levels.
- We use keyboard shortcuts extensively throughout this book. The Macintosh shortcut is presented first (followed by the Windows keystrokes in parentheses). Context-click means hold down the Control key while clicking on the Macintosh, and right-mouse click on Windows.

Iconography
The content inside each chapter is usually presented in a linear fashion. However, you will find numerous asides throughout. In addition to sidebars, which focus on specific ideas or techniques, you will also see:
Tips: Useful tricks and shortcuts, or info on optional third-party products we recommend.

Factoids: Tweaky bits of specific information that might help demystify some subjects (or at least provide interesting party gossip among your tweaky friends).

Gotchas: Important rocks you might trip over, such as special cases in which a feature might not work.

Connects: Mini-indexes at the end of most chapters – these point out additional chapters that contain information related to what you just learned.


Disc Access
This book and its DVD-ROM go hand in hand: Virtually every chapter has its own project file which encourages you to practice the concepts presented in these pages. Look for the Example Project box on the first page of each chapter to verify which project you are to load, and whether you also need to install any of the free third-party plug-ins included on the DVD.

We recommend you copy the DVD, or at least the Chapter Example Projects and Sources folders, to your hard drive. This will speed up file access and allow you to save your own versions of the projects as you work (it will also serve as a backup if the DVD should accidentally break...you know who you are). If files become “unlinked” for some reason, they will appear in italics in the Project window. Simply double-click the first missing item: This will bring up a standard file navigation dialog where you can locate that item. Select the missing file from its corresponding Sources folder and click OK.

Provided the folder relationship between the project and the other sources has not changed, After Effects will now search for the other missing items and link them in as well.

Installation
We assume you already have a copy of After Effects 6.5 installed – if not, a tryout copy is included on this book’s DVD, courtesy of Adobe. It contains all of the features of the Professional edition except for the MPEG encoder, bundled fonts, and third-party effects; it expires 30 days after you first launch it.

The Mac version is an installer; double-click it to run it. To install the Windows version, copy its .zip file to your hard drive, decompress it, and then run the installer found inside the resulting folder.

If you don't already have QuickTime installed on your computer, download it from Apple's Web site (www.apple.com/quicktime). We also assume you already have a copy of Acrobat Reader; if not, an installer is included on your After Effects disc, and may also be downloaded from www.adobe.com.

There are numerous free effects on this book's DVD in the Free Plug-ins folder. Most of the Mac versions may be dragged directly into your After Effects>Plug-ins folder. The Boris BCC plug-ins have installers; double-click them to run them. On the Windows platform, if a plug-in ends in .aex, you may also drag it directly into After Effects>Plug-ins; if it ends in .exe, it is either an installer or self-extracting archive. Copy the .exe file to your hard drive and double-click it to run it. If it is a self-extracting archive, drag the resulting .aex file into your Plug-ins folder.

Install the free font from Digital Vision (in the Goodies folder) as you would any other font on your system. For Windows users, both Postscript and TrueType versions are supplied. A Read Me summary of all these with a guide to their installation is also included in the Free Plug-ins folder as a PDF.

Contact the individual vendors directly for any tech support issues. If you are having trouble with this book’s DVD, contact books@cmp.com for a replacement. (Please put “replacement DVD” in the subject header.)
System Requirements
Our system requirements are similar to what Adobe recommends for After Effects. Most of the examples in this book and corresponding content on the DVD are based on 320×240 pixel images, so they take up less memory and screen real estate. Of course, a faster computer is always better, especially if you’re roaming the land of 3D.

We strongly recommend an extended keyboard, as many great shortcuts take advantage of the function keys and numeric keypad. (If you are using a laptop, learn your extended function keys!) If you are a Mac user, Exposé takes over some of the function keys; open it in System Preferences and reassign any shortcuts that use them. You don’t need a multibutton mouse to use After Effects, but with so many keyboard shortcuts that use context-clicking, the modifier keys, and even the scroll wheel, we recommend it.

For Instructors
If you are an instructor, we hope that you will adapt this book to your specific needs and find it useful in teaching After Effects. Much of this book is modeled on the advanced After Effects classes Trish teaches, as well as sessions we’ve both delivered at numerous conferences and trade shows.

Recognizing the budgets and time constraints of most instructional situations, we’ve built 95% of the example projects using 320×240 comps and similar low-resolution sources. This requires less memory all around and results in faster demonstrations and previewing. However, the concepts are certainly from the real world, and should adapt directly to full-frame video projects.

For copyright reasons, each student must own their own copy of this book. This also allows them to review the material covered after class — without wasting valuable class time writing reams of notes. Students can open the Chapter Example project from the DVD, make changes to it as they practice, and save the edited project to their own folders on a hard disk or removable media. At the next class, if they mount the DVD before opening their modified projects, the sources should relink properly.

If your school has the available disk space, students may copy contents from the DVD to their computers, or you may place the files on a server, but again only as long as each student owns their own copy of this book. Provided each student owns the book, you are free to modify the tutorials and adapt them to your specific teaching situation without infringing copyright.

As an instructor, you no doubt appreciate how much time and effort it takes to prepare examples and class materials that both teach and inspire. If a school, company, or instructor distributes copies of the sources, plug-ins, projects, or PDFs to any person who has not purchased the book, that constitutes copyright infringement. Also, reproducing pages of this book, or any material included on the DVD (including derivative works), is also a copyright no-no. Thank you for protecting our copyrights, and those of the many vendors and studios who contributed sources — your cooperation enables us to write new books and obtain great source materials for your students to learn with.

Qualified teaching professionals can acquire evaluation copies of this book as well as our companion volume, After Effects in Production, by submitting the request form provided on the CMP Books Web site (www.cmpbooks.com) — look under Order Info>Classroom Resources.
The enclosed DVD contains many useful resources for you to explore while reading this book. We suggest you copy its entire contents to your drive for reference and faster access. Here’s what is in each folder:

- **Bonus Tutorials**
  Contains six bonus tutorials in PDF form for you to practice what you’ve learned in this book, combining concepts from multiple chapters. All come with an After Effects project plus QuickTime movie of the final result; some contain additional source material as well.

- **Chapter Example Projects**
  Virtually every chapter has a corresponding example project. This way, you can practice concepts as they come up in each chapter. These projects all point to the shared Sources folder on this DVD; some contain folders of additional content.

- **Credits and Info**
  Information about the numerous stock footage houses and individual artists who contributed content for this book – we encourage you to contact them directly and see what they have to offer. Also contains the End User License Agreements that you agree to when using their content provided on the DVD (a must-read).

- **Free Plug-ins**
  Boris FX, DigiEffects, Digital Anarchy, Digital Film Tools, The Foundry, Red Giant Software, and Walker Effects have contributed useful free plug-ins for you to add to your collection. Install them; they will be used throughout this book. You’ll also find documentation and further information in their respective folders.

- **Goodies**
  A grab bag of useful additional content and information, including a free font from Digital Vision, full-size stock footage from Artbeats and 12 Inch Design, Animation Presets, Interpretation Rules, video and film safe area templates, and information on other books, video, and music from Trish and Chris Meyer.

- **Sources**
  Over 400 megabytes of movies, music, mattes, objects, stills, and text elements that are used by the various projects and tutorials throughout this book. Each file has a two-letter prefix that identifies its creator; a key is provided in the Credits and Info folder as well as on page 468. Make sure you read their respective End User License Agreements in the Credits and Info folder – many may also be used in your own projects.

- **Tryout Version**
  Contains a 30-day tryout copy of the Professional edition of After Effects 6.5 for Macintosh and Windows. If you don’t already have After Effects, copy and run the corresponding installer so you can load the projects!

**DVD Technical Support**
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