THE ART AND SCIENCE OF
DIGITAL COMPOSITING

RON BRINKMANN

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For Mom and Dad,
of course.

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Acknowledgments

Preface

This book is about creating images. It will discuss a number of different tools that can be used to create these images, but it is not a book about tools. In the years that I have been involved with the field of digital compositing, there have been dramatic increases in the power and flexibility of the tools that are available. But the basic concepts have remained the same, and this will most likely continue to be the case for the foreseeable future. Consequently, this book is not intended to be about how to use any specific piece of software—there are too many different tools, and they are changing too quickly. Rather, it is intended to give the reader the information that he or she needs in order to sit down in front of any piece of digital compositing software and be productive. Having been through the process of hiring quite a few compositing artists for the films on which I've worked, I almost always base my choice on the candidate's general compositing experience and not on whether they know how to use a specific package. Knowing where the buttons are located isn't nearly as important as knowing why to press those buttons.

The scope of techniques that fall under the category of digital compositing is actually quite large, from simple wire removals to assembling complex scenes with hundreds of disparate elements. The tools can range in cost from hundreds of thousands of dollars at the high end down to virtually nothing (shareware) at the low end. A person may spend only a few hours on a simple shot, or teams of people may spend months on a complex shot. Every shot is new; every shot is different. That's what makes the field so challenging, and it's also why no book can ever hope to be the final word on the subject.

My primary guideline for myself was to write the book that I wish someone had handed me when I first got started in this business. Although there is certainly no substitute for working alongside experienced professionals, I hope this book will be a good starting place for those new to the field. At the same time, I wanted it to be something that people who have been in the business for a while will also find useful. Straddling the fence can be a somewhat uncomfortable position at times, but I hope the compromise proves worthwhile.

Please feel free to send me feedback on the book, including any specific suggestions for improvements and corrections. I can be reached through my publisher, or e-mail me directly at rbrinkmann@nothingreal.com. I can't promise that I'll be able to reply to everyone, but I will read whatever you send.

Introduction to Digital Compositing

A massive spacecraft hovers over New York, throwing the entire city into shadow. A pair of lizards, sitting in the middle of a swamp, discuss their favorite beer. Dinosaurs, long extinct, live and breathe again, and the Titanic, submerged for decades, sails once more.

Usually the credit for these fantastic visuals is given to "CGI" (computer-generated imagery) or "computer graphics," an attribution that not only broadly simplifies the technology used, but also ignores the sizeable crew of talented artists who actually created the work. Computer graphics techniques, in conjunction with a myriad of other disciplines, *are* commonly used for the creation of visual effects in feature films. But the term "computer graphics" is broad and covers a wide variety of methods that rely on a computer to help produce images. Many of these methods are merely traditional methods that have been updated to take advantage of modern tools. In fact, even the typesetting of a book like this is now almost completely done using a computer, and as such this page could loosely be considered a piece of "computer graphics."

When dealing with computer graphics as used for the creation and manipulation of images, we will usually break the subject down into two primary subcategories: **3D graphics**[1] and **2D graphics.** The names indicate whether the work is

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[1] Do not confuse 3D imagery with stereoscopic imagery, a topic that we will discuss in Chapter 12.