



Digital Illustration Fundamentals

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Lompoc, California, USA

ISBN-13 (pbk): 978-1-4842-1696-5
DOI 10.1007/978-1-4842-1697-2

ISBN-13 (electronic): 978-1-4842-1697-2

Library of Congress Control Number: 2015958157

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Printed on acid-free paper

This book is dedicated to everyone in the open source community who is working so diligently to make professional new media application development software and content development tools freely available to rich application developers so that they can utilize them to achieve our creative dreams and financial goals. Last but not least, I dedicate this book to my father, Parker Jackson; my family; my lifelong friends; and my production ranch neighbors for their constant help, assistance, and those relaxing, late-night BBQs!

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About the Author



Wallace Jackson has been writing for several leading multimedia publications about work in the new media content development industry, after contributing a piece about advanced-computer-processing architectures for the centerfold (a removable “miniissue” insert) of an original issue of *AV Video Multimedia Producer* magazine that was distributed at the SIGGRAPH trade show. Wallace has written for a large number of popular publications about his work in interactive-3D and new-media-advertising campaign design, including *3DArtist* magazine, *Desktop Publisher Journal*, *CrossMedia* magazine, *Kiosk* magazine, *AV Video Multimedia Producer* magazine, *Digital Signage* magazine, and many other publications.

Wallace has authored a dozen Apress book titles, including four titles in its popular Pro Android series, Java and JavaFX game development titles, digital-image-compositing titles, and new-media-content-production titles.

In the current book on digital image compositing, he focuses on the GIMP and Photoshop CS6 digital-image-compositing software packages, and uses them to demonstrate digital-image-editing and -compositing fundamentals to beginners who wish to become digital imaging professionals.

Wallace is currently the CEO of MindTaffy Design, an agency specializing in new media content production and digital campaign design and development, located in Northern Santa Barbara County, halfway between its clientele in Silicon Valley to the north and Hollywood, the “OC,” West LA, and San Diego to the south.

MindTaffy Design has created open source, technology-based (HTML5, JavaScript, Java, JavaFX, and Android 5.3) digital-new-media i3D content deliverables for more than a quarter century (since 1991).

The company’s clients consist of a significant number of international branded manufacturers, including Sony, Tyco, Samsung, IBM, Dell, Epson, Nokia, TEAC, Sun Microsystems, Micron, SGI, KDS USA, EIZO, CTX International, KFC, Nanao USA, Techmedia, EZC, and Mitsubishi.

■ ABOUT THE AUTHOR

Wallace received his undergraduate BA degree in business economics from the University of California at Los Angeles (UCLA) and his graduate degree in MIS business information systems design and implementation from University of Southern California in Los Angeles (USC). Wallace also received a postgraduate degree in marketing strategy from USC and completed the USC Graduate Entrepreneurship Program. He earned the two USC degrees while at USC's night-time Marshall School of Business MBA Program, which allowed him to work full time as a COBOL programmer while completing his degrees.

About the Technical Reviewer



Chád (“Shod”) Darby is an author, instructor, and speaker in the Java development world. As a recognized authority on Java applications and architectures, he has presented technical sessions at software development conferences worldwide (in the United States, UK, India, Russia, and Australia). In his fifteen years as a professional software architect, he’s had the opportunity to work for Blue Cross/Blue Shield, Merck, Boeing, Red Hat, and a handful of startup companies.

Chád is a contributing author to several Java books, including *Professional Java E-Commerce* (Wrox Press), *Beginning Java Networking* (Wrox Press), and *XML and Web Services Unleashed* (Sams Publishing).

Chád has Java certifications from Sun Microsystems and IBM. He holds a BS in computer science from Carnegie Mellon University.

You can visit Chád’s blog at www.luv2code.com to view his free video tutorials on Java. You can also follow him on Twitter at @darbyluvs2code.

Acknowledgments

I would like to acknowledge all my fantastic editors and their support staff at Apress, who worked those long hours and toiled so very hard on this book to make it the ultimate image-compositing-fundamentals book title currently on the market.

I thank:

Steve Anglin for his work as the Acquisitions Editor for the book and for recruiting me to write development titles at Apress covering widely popular open source content development platforms (Android, Java, JavaFX, HTML5, CSS3, JS, GIMP, etc.).

Matthew Moodie for his work as the Development Editor on the book and for his experience and guidance during the process of making the book one of the leading digital illustration titles.

Mark Powers for his work as the Coordinating Editor for the book and for his constant diligence in making sure that I either hit my chapter delivery deadlines or far surpassed them.

Karen Jameson for her work as the Copy Editor on this book, for her careful attention to minute details, and for conforming the text to current Apress book writing standards.

Chád Darby for his work as the Technical Reviewer on the book and for making sure that I didn't make technical mistakes.

CHAPTER 1



The Foundation of Digital Illustration: Points and Lines

Welcome to *Digital Illustration Fundamentals*! This book will take you through the foundation of digital illustration, as well as covering how to use vector illustration assets with popular computer programming languages and open source content publishing platforms such as Kindle, Android Studio, HTML5, and JavaFX. I will start at the lowest level concepts – in this chapter it is the **vertex** and the lines that connect these vertices together – and then we will build upon each of these foundational concepts in subsequent chapters, until you have a comprehensive understanding of digital illustration modeling, color, gradient or pattern shading, command editing and vector rendering concepts and associated terminology, file formats, work flows, spline editing, effects processing, data footprint optimization, computer programming, and content publishing.

I will show you how these concepts, techniques, and terms apply to the Inkscape open source digital illustration software package. This just so happens to be free for commercial use and very similar in features to Adobe Illustrator and CorelDRAW.

For this reason, part of the chapter, logically the first part, would be how to download and install open source Inkscape software, just in case you do not have any digital illustration software on your multimedia workstation currently. Then, you'll learn about the foundational elements of digital illustration.

Industry professionals call this a “vertex” or a “node.” Once you put this together with other “vertices,” the new media result comprises what’s called a vector “shape.”

How these digital illustration vector shapes are created and rendered is what this book is all about, and we will build on the knowledge in this chapter with curves, fills, gradients, patterns, commands, algorithms, tracing, layers, editing tools, fonts, data footprint optimization, content delivery, and more, until you understand everything about this digital illustration work process and how it can be used with modern-day devices.

Downloading and Installing Inkscape

All our readers are going to need to have digital illustration software of one type or another, whether that is CorelDRAW or Adobe Illustrator or Macromedia Freehand. If you do not own any of these, you can use the free-for-commercial-use **Inkscape**. Let's install Inkscape for Windows, Mac OS X, or Linux, next.

Inkscape.org: Get Inkscape Illustration Software

To download the current stable version of Inkscape, you will go to: <http://www.inkscape.org>, and click on the green **Download Arrow** link, seen in Figure 1-1, or alternately click on the **Download** tab, which is directly underneath the Inkscape logo.

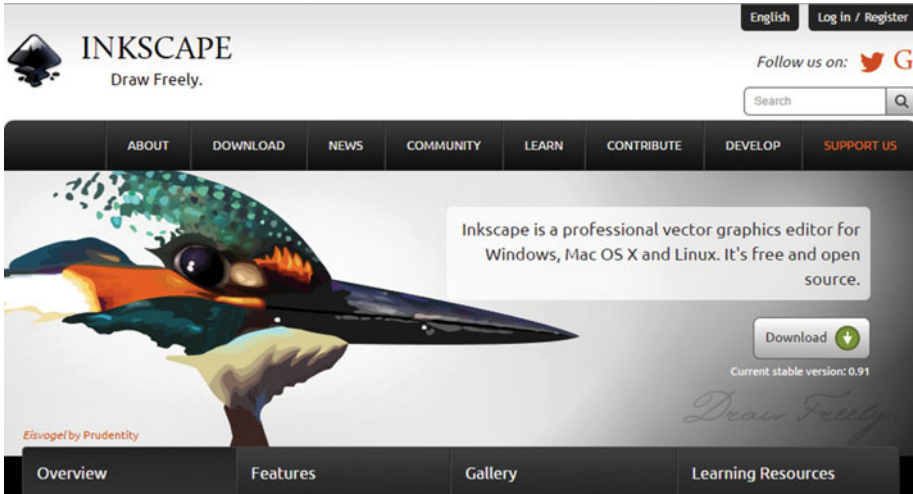


Figure 1-1. Go to the inkscape.org, and click the **Download** arrow

Download the **inkscape-0.91-x64.msi** installer file if you are using Windows or a Linux or Mac version. Next, right-click on it and select the **Install** option to start your installation process. Inkscape for Windows uses a 64-bit version, since most modern-day workstations run 64-bit Windows Vista, 7, 8.1, or 10. Figure 1-2 shows the downloaded file, which has been selected, and right-clicked on to reveal the context-sensitive menu, with this **Install** option selected in blue. If for some reason you do not own a 64-bit content production workstation, go to Walmart, and purchase a brand name workstation tower for \$400 to \$500. I have used, and recommend, the Acer, HP, and Compaq workstations.

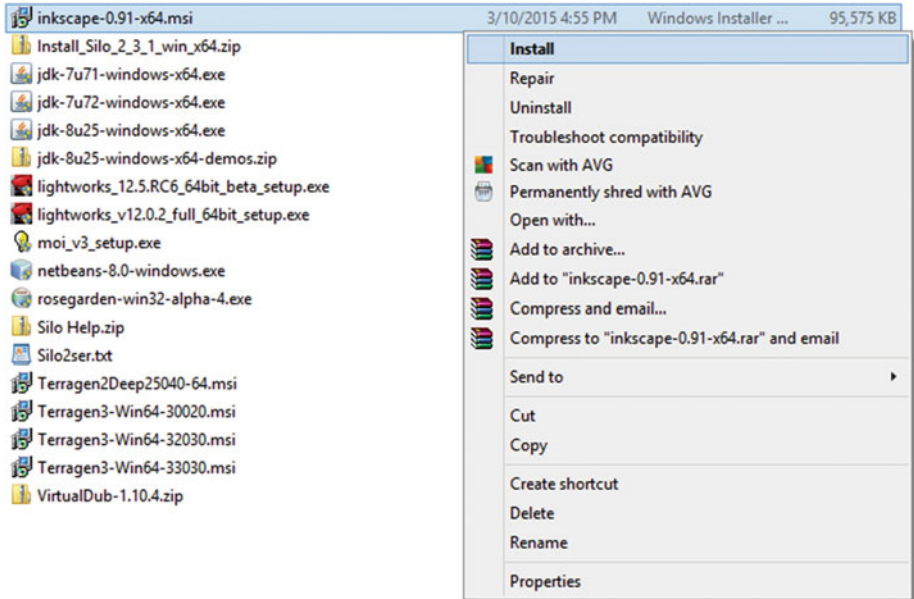


Figure 1-2. Right-click on .MSI file, and select Install option

Once your installation starts, click the NEXT button, as is shown on the left-hand side of Figure 1-2.

Once you click on the Next button you'll get an **End-User License Agreement** dialog. Select the I accept the terms in the License Agreement check box, and then click on **Next** to continue.

Next click on the **Typical** installation type button, then click on the **Next** button, as is shown on the right-hand side in Figure 1-3.



Figure 1-3. Click Install, then Next, then the Typical Button

This will give you the **Ready to Install Inkscape** dialog, seen in Figure 1-4 on the left, where you can click on **Install**.