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Wallace Jackson
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Digital Audio Editing Fundamentals is dedicated to everyone in the open source community who is working so diligently to make professional 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 life-long 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 “mini-issue” 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 nighttime 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, the United Kingdom, India, Russia, and Australia). In his 15 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 start-up 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.

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Finally, I'd like to acknowledge Oracle for acquiring Sun Microsystems and continuing to enhance Java and JavaFX, which allows their Java and JavaFX to remain the premiere open-source programming languages, and allows digital audio compositing pipelines to be written in Java code, taking this industry to the next level.

Introduction

Digital audio is currently exploding into the marketplace due to a couple of important market phenomena. The first is HD Audio, which features 24-bit, 96 kHz quality levels, and the second is a proliferation of consumer electronics genres that leverage digital audio specifically. These include digital automobile dashboards that run apps, iTVs that feature both HD and UHD high-definition screens and high-quality digital audio, home appliance devices, remote home control devices, drones, robots, affordable gaming consoles, interactive set-top boxes, digital home theater systems, home media centers, and similar new gadgetry that includes high-quality digital audio, which is what this book is all about. Of course, I will also cover your standard PCs, laptops, tablets, smartphones, e-book readers, notebooks, and netbooks that currently populate the marketplace today.

Digital Audio Editing Fundamentals was intended for HTML5 web site developers, multimedia producers, Android 6 application developers, HTML5 application developers, Java and JavaFX application developers, social media entrepreneurs, podcasters, digital audio user-interface designers, digital audio user-experience designers, or social media users of audio-centric web sites such as [SoundCloud](#), [Dubbler](#), [Eevzdrop](#), [DigiSocial](#), and [MySpace](#). In fact, just about anyone who is interested in generating high-quality, digital audio music, vocals, or other audio assets, such as special effects, delivered using popular MPEG-4, FLAC, Ogg Vorbis, WAV, AIFF, AMR, or MP3 digital audio file formats, will be interested in this *Digital Audio Editing Fundamentals* book.

This book covers digital audio editing and compositing. In the early chapters, this equates to fundamentals: terms, topics, concepts, and definitions. Every subsequent chapter builds upon the knowledge of the previous chapter, so the editing chapters in the book have readers creating advanced digital audio editing moves, using audio filters, analysis tools, and algorithms to apply special effects, create tracks, and the like.

There's even coverage at the end of this book regarding digital audio data footprint optimization, as well as creating digital audio compositing pipelines using open source platforms such as Java 8, JavaFX, HTML5, CSS3, JavaScript, Nyquist 3, and Android Studio 2.0, as well as information covering platforms and consumer electronics devices.

This digital audio fundamentals title will bring you from someone who has no real knowledge of how analog audio or digital audio works, much less how to bridge the two, to teach you about the history, concepts, and algorithms that encompass digital audio.

Chapter 1 focuses on a foundation of digital audio—the sound wave—and makes sure that you have a professional digital audio editing and compositing software package called Audacity 2.1.1 installed on your multimedia production workstation.

Chapter 2 covers the fascinating history of digital audio and the emergence of digital audio on personal computer systems with the advent of MIDI keyboards. MIDI stands for Musical Instrument Digital Interface, and you will see how it worked with synthesizer keyboards, and later sampling keyboards, until powerful modern-day sound design workstations and digital audio editors finally came into their own.