Content Production of Digital Audio/Video, Illustration and 3D Animation

Android Studio

New Media Fundamentals

Wallace Jackson

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Contents at a Glance

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About the Author

Wallace Jackson has been writing for leading multimedia publications about his work in new media content development since the advent of *Multimedia Producer Magazine* nearly two decades ago, when he wrote about advanced computer processor architecture for an issue centerfold (a removable "mini-issue" insert) distributed at the SIGGRAPH trade show. Since then, Wallace has written for a number of other popular publications about his work in interactive 3D and new media advertising campaign design, including *3D Artist Magazine*, *Desktop Publishers Journal*, *CrossMedia Magazine*, *AV Video/Multimedia Producer Magazine*, *Digital Signage Magazine*, and *Kiosk Magazine*.

Jackson has authored a half-dozen Android book titles for Apress, including four titles in the popular *Pro Android* series. This particular Java 8 programming title focuses on the Java and JavaFX programming languages that are used with Android (and all other popular platforms as well) so that developers can "code once, deliver everywhere."

Jackson is currently the CEO of Mind Taffy Design, a new media content production and digital campaign design and development agency, located in North Santa Barbara County, halfway between clientele in Silicon Valley to the north and in Hollywood, "The OC," and San Diego to the south.

Mind Taffy Design has created open source technology–based (HTML5, JavaScript, Java 8, JavaFX 8, and Android 5) digital new media content deliverables for more than two decades (since 1991) for a significant number of leading branded manufacturers worldwide, including Sony, Tyco, Samsung, IBM, Dell, Epson, Nokia, TEAC, Sun, Micron, SGI, and Mitsubishi.

Jackson received his undergraduate degree in business economics from the University of California at Los Angeles (UCLA). He received his graduate degree in MIS Design and Implementation from the University of Southern California (USC). Jackson also received his post-graduate degree in marketing strategy at USC and completed the USC Graduate Entrepreneurship Program. The USC degrees were completed while at USC's night-time Marshall School of Business MBA Program, which allowed him to work full-time as a programmer while he completed his graduate and post-graduate business 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 (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 startup companies.

Chád is a contributing author to several Java books, including *Professional Java E-Commerce* (Wrox Press, 2001), *Beginning Java Networking* (Wrox Press, 2001), and *XML and Web Services Unleashed* (Sams Publishing, 2002). Chád has Java certifications from Sun Microsystems and IBM. He holds a BS in computer science from Carnegie Mellon University.

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

CHAPTER 1

Enhancing Android Apps: Using New Media Assets

Welcome to *Android Studio New Media Fundamentals*. This book will take you through the foundation of new media principles and concepts so that you have a firm foundation regarding what Android Studio and the Android OS offer in the area of new media support. **New media**, sometimes referred to as **rich media** or **multimedia**, spans a number of professional artist occupations, which is why a multimedia producer has to be good at producing all forms of new media. This book seeks to enhance your knowledge of new media fundamentals and how they apply to Android Studio, so that you can make Android apps that are more stimulating to the senses—and thus more popular!

In this chapter, you'll take a look at the different forms of new media supported by the Android OS and how they can help your applications stand apart from the competition. You will also install professional-quality, open source software applications for each of the new media genres, so that you will be able to produce new media content for Android applications.

This book makes the assumption that you're already up to speed on Android Studio and its feature set—you have downloaded and installed it, and you are busy programming Android applications. I wrote this book to bolster your knowledge of the new media portion of the Android Studio equation, so that you will be able to add **custom multimedia assets** to your Android application instead of using the canned UI components that come with the operating system.

Throughout the rest of the book, there are two chapters per new media type (genre) to get you up to speed on the fundamentals and to learn how these new media types are supported in Android Studio; you'll also learn about the principles of data footprint optimization.

This book does not cover Android Studio, at least not directly; I assume that you have already downloaded and installed Android Studio, and that you know the basics. I have an *Android Apps for Absolute Beginners* (Apress, 2014) title that covers these topics if you need that foundational knowledge.

W. Jackson, *Android Studio New Media Fundamentals*,
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New Media Genres: Multimedia Pie Slices

There are a number of different types (or genres) of new media, and all of these are supported in Java and JavaFX (which power Android, along with the Linux Kernel) as well as in Android OS. These support adding what I like to call new media "assets" to the Android application code. You're familiar with most of them I imagine: **digital images** like those on Pinterest or Instagram, or **digital audio** like that on Spotify or Pandora. **Digital video** can be used to stream movies or your favorite television show. Less prolific new media types include 2D vector or **digital illustration** media that looks like 2D cartoons, and 3D vector, or interactive 3D media, like you see people using on popular game consoles like Xbox to play sports or adventure games. All of these examples are high-sensory user experiences, so adding new media assets or elements to your Android application development process is how to take your app to the next level!

Separate Your App from the Crowd: New Media

The major advantage to incorporating new media assets into your Android application development in Android Studio is the visual and aural "wow factor" that you can add to an application. This sets it apart from other applications and generates a word-of-mouth marketing effort on the behalf of your users, and that you will not have to pay for. This is what I'd call a "windfall profit," and it is what this book targets to bring to your Android application development knowledge base and to your new media assets for Android Studio content production. For example, where digital imagery is concerned, instead of having a solid background color, use a subdued texture or a subtle color gradient, which is actually digital illustration, as you'll learn over the course (no pun intended) of this book.

Where digital audio is concerned, with custom audio user interface sounds for user interaction feedback, users will feel like they're more closely tied into, or are a part of, your Android application. Digital audio can enhance the user experience more than you are probably giving high-quality audio credit for!

Digital video and interactive 3D are more on the content production side of the application enhancement spectrum, rather than on the user interface design side of things; however, they are just as important. Digital video that is well optimized may play back more smoothly via slower connections, and interactive 3D, or i3D, applications are rare, other than popular 3D games.

Next let's take a look at the new media file formats the Android operating system includes. What I mean by "includes" is a decoder for the file format's codec (**cod**e-**dec**ode) is actually a part of the Android OS, and already installed on the hardware!

Android Studio New Media Support: File Formats

The key to bridging your new media content production to your Android Studio development environment is those new media file formats currently supported in Android 5 or later. Most of them are supported in Android 4. Many of these are also supported in earlier versions of Android, such as 1.6, 2.37, and 3.2. Devices running these versions of Android are becoming hard to find; soon all you will have to worry about is 32-bit Android 4.4 and