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The Only Official, Best-Practice Guide to Qt 4.3 Programming Using Trolltech's Qt you can build industrial-strength C++ applications that run natively on Windows, Linux/Unix, Mac OS X, and embedded Linux without source code changes. Now, two Trolltech insiders have written a start-to-finish guide to getting outstanding results with the latest version of Qt: Qt 4.3. Packed with realistic examples and in-depth advice, this is the book Trolltech uses to teach Qt to its own new hires. Extensively revised and expanded, it reveals today's best Qt programming patterns for everything from implementing model/view architecture to using Qt 4.3's improved graphics support. You'll find proven solutions for virtually every GUI development task, as well as sophisticated techniques for providing database access, integrating XML, using subclassing, composition, and more. Whether you're new to Qt or upgrading from an older version, this book can help you accomplish everything that Qt 4.3 makes possible. Completely updated throughout, with significant new coverage of databases, XML, and Qtopia embedded programming Covers all Qt 4.2/4.3 changes, including Windows Vista support, native CSS support for widget styling, and SVG file generation Contains separate 2D and 3D chapters, coverage of Qt 4.3's new graphics view classes, and an introduction to QPainter's OpenGL back-end Includes new chapters on look-and-feel customization and application scripting Illustrates Qt 4's model/view architecture, plugin support, layout management, event

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processing, container classes, and much more Presents advanced techniques covered in no other book—from creating plugins to interfacing with native APIs Includes a new appendix on Qt Jambi, the new Java version of Qt The volume includes a set of selected papers extended and revised from the International Conference on Informatics, Cybernetics, and Computer Engineering. A computer network, often simply referred to as a network, is a collection of computers and devices interconnected by communications channels that facilitate communications and allows sharing of resources and information among interconnected devices. Put more simply, a computer network is a collection of two or more computers linked together for the purposes of sharing information, resources, among other things. Computer networking or Data Communications (Datacom) is the engineering discipline concerned with computer networks. Computer networking is sometimes considered a sub-discipline of electrical engineering, telecommunications, computer science, information technology and/or computer engineering since it relies heavily upon the theoretical and practical application of these scientific and engineering disciplines. Networks may be classified according to a wide variety of characteristics such as medium used to transport the data, communications protocol used, scale, topology, organizational scope, etc. Electronics engineering, also referred to as electronic engineering, is an engineering discipline where non-linear and active electrical components such as electron tubes, and semiconductor devices, especially transistors, diodes and integrated

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circuits, are utilized to design electronic circuits, devices and systems, typically also including passive electrical components and based on printed circuit boards. The term denotes a broad engineering field that covers important subfields such as analog electronics, digital electronics, consumer electronics, embedded systems and power electronics. Electronics engineering deals with implementation of applications, principles and algorithms developed within many related fields, for example solid-state physics, radio engineering, telecommunications, control systems, signal processing, systems engineering, computer engineering, instrumentation engineering, electric power control, robotics, and many others. ICCE 2011 Volume 3 is to provide a forum for researchers, educators, engineers, and government officials involved in the general areas of Computer Engineering and Electronic Engineering to disseminate their latest research results and exchange views on the future research directions of these fields. 99 high-quality papers are included in the volume. Each paper has been peer-reviewed by at least 2 program committee members and selected by the volume editor. Special thanks to editors, staff of association and every participants of the conference. It's you make the conference a success. We look forward to meeting you next year.

An definitive overview of Qt explains how to use this powerful, cross-platform GUI toolkit to create applications for the UNIX and Win32 environments, detailing the GUI elements in Qt and how to use them, and includes information on 2D transformations, drag-

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and-drop, and custom image file filters. Original.
(Advanced).

This is a cookbook that shows results obtained on real images with detailed explanations and the relevant screenshots. The recipes contain code accompanied with suitable explanations that will facilitate your learning. If you are a novice C++ programmer who wants to learn how to use the OpenCV library to build computer vision applications, then this cookbook is appropriate for you. It is also suitable for professional software developers wishing to be introduced to the concepts of computer vision programming. It can be used as a companion book in university-level computer vision courses. It constitutes an excellent reference for graduate students and researchers in image processing and computer vision. The book provides a good combination of basic to advanced recipes. Basic knowledge of C++ is required.

Learn the fundamentals of QT 5 framework to develop interactive cross-platform applications

Key Features

A practical guide on the fundamentals of application development with QT 5

Learn to write scalable, robust and adaptable C++ code with QT

Deploy your application on different platforms such as Windows, Mac OS, and Linux

Book Description

Qt is a mature and powerful framework for delivering sophisticated applications across a multitude of platforms. It has a rich history in the Linux world, is widely used in embedded devices, and has made great strides in the Mobile arena over the past few years. However, in the Microsoft Windows and Apple Mac OS X worlds, the dominance of C#/.NET and Objective-C/Cocoa means that Qt is often

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overlooked. This book demonstrates the power and flexibility of the Qt framework for desktop application development and shows how you can write your application once and deploy it to multiple operating systems. Build a complete real-world line of business (LOB) solution from scratch, with distinct C++ library, QML user interface, and QtTest-driven unit-test projects. This is a suite of essential techniques that cover the core requirements for most LOB applications and will empower you to progress from a blank page to shipped application. What you will learn

- Install and configure the Qt Framework and Qt Creator IDE
- Create a new multi-project solution from scratch and control every aspect of it with QMake
- Implement a rich user interface with QML
- Learn the fundamentals of QtTest and how to integrate unit testing
- Build self-aware data entities that can serialize themselves to and from JSON
- Manage data persistence with SQLite and CRUD operations
- Reach out to the internet and consume an RSS feed
- Produce application packages for distribution to other users

Who this book is for This book is for application developers who want a powerful and flexible framework to create modern, responsive applications on Microsoft Windows, Apple Mac OS X, and Linux desktop platforms. You should be comfortable with C++ but no prior knowledge of Qt or QML is required.

This updated reference offers a clear description of make, a central engine in many programming projects that simplifies the process of re-linking a program after re-compiling source files. Original. (Intermediate)

Presenting hints on developing user-friendly applications,

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Molkentin explores tools needed to create dialog boxes, steps to follow when developing a GUI-based application, and how to visualize data using Qt's "model-view concept.

While media buzz regularly circulates around iPhone and Android, Nokia still leads the pack in terms of world market share. Symbian, for instance, remains the most widely used mobile operating system. With Nokia's open development platform, the opportunities available for mobile developers to target this vastly popular operating system are abundant and clear. Use Qt to target both platforms: Symbian, the most widely used mobile operating system in the world, as well as MeeGo, the Intel/Nokia platform for mobile devices. Develop HTML5 applications for both Symbian and MeeGo platforms that will run with little modification on other mobile platforms. Novice developers learn the basics of Qt with a mobile slant, giving them the ability to target both desktop and mobile platforms.

If you want to enter the fascinating world of Tizen and learn how to develop engaging and successful applications then this book is for you. It'll benefit novices and experienced application developers alike.

Handbook of Open Source Tools introduces a comprehensive collection of advanced open source tools useful in developing software applications. The book contains information on more than 200 open-source tools which include software construction utilities for compilers, virtual-machines, database, graphics, high-performance computing, OpenGL, geometry, algebra, graph theory , GUIs and more. Special highlights for software construction utilities and application libraries are included. Each tool is covered in the context of a real like application development setting. This unique handbook presents a comprehensive discussion of advanced

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tools, a valuable asset used by most application developers and programmers; includes a special focus on Mathematical Open Source Software not available in most Open Source Software books, and introduces several tools (eg ACL2, CLIPS, CUDA, and COIN) which are not known outside of select groups, but are very powerful. Handbook of Open Source Tools is designed for application developers and programmers working with Open Source Tools. Advanced-level students concentrating on Engineering, Mathematics and Computer Science will find this reference a valuable asset as well.

Build mobile applications for Nokia's S60 phones using the hot Qt GUI tool This vital primer—written by developers involved in the latest release of Qt—is a must for anyone wanting to learn this cutting-edge programming environment. Qt is a multi-platform, C++ GUI toolkit that allows you to develop applications and user interfaces once, then deploy them across many desktop and embedded operating systems, without rewriting the source code. Now being applied to the S60 platform (Nokia's new, uniform UI), Qt promises to save development resources, cut costs, and get you to market faster. This unique guide helps you master this exciting tool with step-by-step instruction from some of the best developers in the S60 field. Find easy-to-access tips, techniques, examples, and much more. Walks you through installation of the Qt developer platform and SDK Explains the basic Qt environment and how it can save you development time Delves into the extension of Qt for the S60, including communication and sensors Provides plenty of examples to help you quickly grasp concepts Help revolutionize the S60 mobile market and stay ahead of the crowd with your own state-of-the-art applications, developed with Qt and the detailed information in this unique guide. Straight from Trolltech, this book covers all one needs to build

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industrial-strength applications with Qt 3.2.x and C++-applications that run natively on Windows, Linux/UNIX, Mac OS X, and embedded Linux with no source code changes. Includes a CD with the Qt 3.2 toolset and Borland C++ compilers--including a noncommercial Qt 3.2 for Windows available nowhere else.

Create image processing, object detection and face recognition apps by leveraging the power of machine learning and deep learning with OpenCV 4 and Qt 5

Key Features

Gain practical insights into code for all projects covered in this book Understand modern computer vision concepts such as character recognition, image processing and modification Learn to use a graphics processing unit (GPU) and its parallel processing power for filtering images quickly

Book Description

OpenCV and Qt have proven to be a winning combination for developing cross-platform computer vision applications. By leveraging their power, you can create robust applications with both an intuitive graphical user interface (GUI) and high-performance capabilities. This book will help you learn through a variety of real-world projects on image processing, face and text recognition, object detection, and high-performance computing. You'll be able to progressively build on your skills by working on projects of increasing complexity. You'll begin by creating an image viewer application, building a user interface from scratch by adding menus, performing actions based on key-presses, and applying other functions. As you progress, the book will guide you through using OpenCV image processing and modification functions to edit an image with filters and transformation features. In addition to this, you'll explore the complex motion analysis and facial landmark detection algorithms, which you can use to build security and face detection applications. Finally, you'll learn to use pretrained deep learning models in OpenCV and GPUs to filter images

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quickly. By the end of this book, you will have learned how to effectively develop full-fledged computer vision applications with OpenCV and Qt. What you will learn

- Create an image viewer with all the basic requirements
- Construct an image editor to filter or transform images
- Develop a security app to detect movement and secure homes
- Build an app to detect facial landmarks and apply masks to faces
- Create an app to extract text from scanned documents and photos
- Train and use cascade classifiers and DL models for object detection
- Build an app to measure the distance between detected objects
- Implement high-speed image filters on GPU with Open Graphics Library (OpenGL)

Who this book is for This book is for engineers and developers who are familiar with both Qt and OpenCV frameworks and are capable of creating simple projects using them, but want to build their skills to create professional-level projects using them. Familiarity with the C++ language is a must to follow the example source codes in this book.

Explains how to understand and use Linux, covering installation, system administration, configuring desktops, and networking, along with topics such as the GNOME desktop, security, package management, and sound configuration.

Linux for Embedded and Real-Time Applications, Fourth Edition, provides a practical introduction to the basics, covering the latest developments in this rapidly evolving technology. Ideal for those new to the use of Linux in an embedded environment, the book takes a hands-on approach that covers key concepts of building applications in a cross-development environment. Hands-on exercises focus on the popular open source BeagleBone Black board. New content includes graphical programming with QT as well as expanded and updated material on projects such as Eclipse, BusyBox –

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configuring and building, the U-Boot bootloader – what it is, how it works, configuring and building, and new coverage of the Root file system and the latest updates on the Linux kernel.. Provides a hands-on introduction for engineers and software developers who need to get up to speed quickly on embedded Linux, its operation and capabilities Covers the popular open source target boards, the BeagleBone and BeagleBone Black Includes new and updated material that focuses on BusyBox, U-Boot bootloader and graphical programming with QT Congratulations on purchasing the ODROID-XU4! It is one of the most powerful low-cost Single Board computers available, as well as being an extremely versatile device. Featuring an octa-core Exynos 5422 big.LITTLE processor, advanced Mali GPU, and Gigabit ethernet, it can function as a home theater set-top box, a general purpose computer for web browsing, gaming and socializing, a compact tool for college or office work, a prototyping device for hardware tinkering, a controller for home automation, a workstation for software development, and much more. Some of the modern operating systems that run on the ODROID-XU4 are Ubuntu, Android, Fedora, ARCHLinux, Debian, and OpenELEC, with thousands of free open-source software packages available. The ODROID-XU4 is an ARM device, which is the most widely used architecture for mobile devices and embedded 32-bit computing. The Hitchhiker's Guide to Python takes the journeyman Pythonista to true expertise. More than any other language, Python was created with the philosophy of simplicity and parsimony. Now 25 years old, Python has

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become the primary or secondary language (after SQL) for many business users. With popularity comes diversity—and possibly dilution. This guide, collaboratively written by over a hundred members of the Python community, describes best practices currently used by package and application developers. Unlike other books for this audience, *The Hitchhiker’s Guide* is light on reusable code and heavier on design philosophy, directing the reader to excellent sources that already exist.

Qt is one of the most influential graphical toolkits for the Linux operating system and is quickly being adopted on other platforms (Windows, Mac OS) as well. It is necessary to learn for all Linux programmers. This book takes the reader step by step through the complexities of Qt, laying the groundwork that allows the reader to make the step from novice to professional. This book is full of real world examples that can be quickly integrated into a developer’s project. While the reader is assumed to be a beginner at Qt development, they are required to have a working knowledge of C++ programming.

“This book represents a thorough and extensive treatment of the software build process including the choices, benefits, and challenges of a well designed build process. I recommend it not only to all software build engineers but to all software developers since a well designed build process is key to an effective software development process.” —Kevin Bodie, Director Software Development, Pitney Bowes Inc. “An excellent and detailed explanation of build systems, an important but often overlooked part of software development

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projects. The discussion of productivity as related to build systems is, alone, well worth the time spent reading this book.” —John M. Pantone, Objectech Corporation, VP, IT Educator and Course Developer “Peter Smith provides an interesting and accessible look into the world of software build systems, distilling years of experience and covering virtually every type of tool in the build engineer’s toolbox. Well organized, well written, and very thorough; I would recommend this book to anyone with a build system under their responsibility.” —Jeff Overbey, Project Co-Lead, Photran “Software Build Systems teaches how to think about building software. It surveys the tools and techniques for building software products and the ways things go wrong. This book will appeal to those new to build systems as well as experienced build system engineers.” —Monte Davidoff, Software Development Consultant, Alluvial Software, Inc. Inadequate build systems can dramatically impact developer productivity. Bad dependencies, false compile errors, failed software images, slow compilation, and time-wasting manual processes are just some of the byproducts of a subpar build system. In Software Build Systems, software productivity expert Peter Smith shows you how to implement build systems that overcome all these problems, so you can deliver reliable software more rapidly, at lower cost. Smith explains the core principles underlying highly efficient build systems, surveying both system features and usage scenarios. Next, he encapsulates years of experience in creating and maintaining diverse build systems—helping you make well-informed choices about tools and practices, and

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avoid common traps and pitfalls. Throughout, he shares a wide range of practical examples and lessons from multiple environments, including Java, C++, C, and C#.

- Mastering build system concepts, including source trees, build tools, and compilation tools
- Comparing five leading build tools: GNU Make, Ant, SCons, CMake, and the Eclipse IDE's integrated build features
- Ensuring accurate dependency checking and efficient incremental compilation
- Using metadata to assist debugging, profiling, and source code documentation
- Packaging software for installation on your target machine
- Best practices for managing complex version-control systems, build machines, and compilation tools

If you're a developer, this book will illuminate the issues involved in building and maintaining the build system that's best for your team. If you're a manager, you'll discover how to evaluate your team's build system and improve its effectiveness. And if you're a build "guru," you'll learn how to optimize the performance and scalability of your build system, no matter how demanding your requirements are.

Electronic commerce (e-commerce) is rapidly transforming the way in which enterprises are interacting among each other as well as with consumers and governments. Despite important potential benefits, businesses and consumers in developing countries were for a long time slow to exploit e-commerce. As a result of changes in the evolving landscape for information and communications technologies (ICTs), this pattern is now changing, and e-commerce is growing rapidly in emerging markets and developing economies. Against

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this background, this publication revisits the potential opportunities and risks of e-commerce and examines how countries can benefit the most from the phenomenon in today's Information Society. Using official statistics and private sector data, it provides an up-to-date review of global and regional trends related to e-commerce in view of changes in the ICT landscape, focusing on developing countries while drawing lessons from developed countries.

Explore Qt Creator, Qt Quick, and QML to design and develop applications that work on desktop, mobile, embedded, and IoT platforms

Key Features

- Build a solid foundation in Qt by learning about its core classes, multithreading, File I/O, and networking
- Learn GUI programming and build custom interfaces using Qt Widgets, Qt Designer, and QML
- Use the latest features of C++17 for improving the performance of your Qt applications

Book Description

Qt is a powerful development framework that serves as a complete toolset for building cross-platform applications, helping you reduce development time and improve productivity. Completely revised and updated to cover C++17 and the latest developments in Qt 5.12, this comprehensive guide is the third edition of *Application Development with Qt Creator*. You'll start by designing a user interface using Qt Designer and learn how to instantiate custom messages, forms, and dialogues. You'll then understand Qt's support for multithreading, a key tool for making applications responsive, and the use of Qt's Model-View-Controller (MVC) to display data and content. As you advance, you'll learn to draw images on screen using

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Graphics View Framework and create custom widgets that interoperate with Qt Widgets. This Qt programming book takes you through Qt Creator's latest features, such as Qt Quick Controls 2, enhanced CMake support, a new graphical editor for SCXML, and a model editor. You'll even work with multimedia and sensors using Qt Quick, and finally develop applications for mobile, IoT, and embedded devices using Qt Creator. By the end of this Qt book, you'll be able to create your own cross-platform applications from scratch using Qt Creator and the C++ programming language. What you will learn

- Create programs from scratch using the Qt framework and C++ language
- Compile and debug your Qt Quick and C++ applications using Qt Creator
- Implement map view with your Qt application and display device location on the map
- Understand how to call Android and iOS native functions from Qt C++ code
- Localize your application with Qt Linguist
- Explore various Qt Quick components that provide access to audio and video playbacks
- Develop GUI applications using both Qt and Qt Quick

Who this book is for If you are a beginner looking to harness the power of Qt and the Qt Creator framework for cross-platform development, this book is for you. Although no prior knowledge of Qt and Qt Creator is required, basic knowledge of C++ programming is assumed.

A complete guide to designing and building fun games with Qt and Qt Quick using associated toolsets

Key Features A step by step guide to learn Qt by building simple yet entertaining games Get acquainted with a small yet powerful addition—Qt

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Gamepad Module, that enables Qt applications to support the use of gamepad hardware Understand technologies such as QML, OpenGL, and Qt Creator to design intuitive games Book Description Qt is the leading cross-platform toolkit for all significant desktop, mobile, and embedded platforms and is becoming popular by the day, especially on mobile and embedded devices. It's a powerful tool that perfectly fits the needs of game developers. This book will help you learn the basics of Qt and will equip you with the necessary toolsets to build apps and games. The book begins by how to create an application and prepare a working environment for both desktop and mobile platforms. You will learn how to use built-in Qt widgets and Form Editor to create a GUI application and then learn the basics of creating graphical interfaces and Qt's core concepts. Further, you'll learn to enrich your games by implementing network connectivity and employing scripting. You will learn about Qt's capabilities for handling strings and files, data storage, and serialization. Moving on, you will learn about the new Qt Gamepad module and how to add it in your game and then delve into OpenGL and Vulkan, and how it can be used in Qt applications to implement hardware-accelerated 2D and 3D graphics. You will then explore various facets of Qt Quick: how it can be used in games to add game logic, add game physics, and build astonishing UIs for your games.

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By the end of this book, you will have developed the skillset to develop interesting games with Qt. What you will learn

- Install the latest version of Qt on your system
- Understand the basic concepts of every Qt game and application
- Develop 2D object-oriented graphics using Qt Graphics View
- Build multiplayer games or add a chat function to your games with Qt Network module
- Script your game with Qt QML
- Explore the Qt Gamepad module in order to integrate gamepad support in C++ and QML applications
- Program resolution-independent and fluid UIs using QML and Qt Quick
- Control your game flow in line with mobile device sensors
- Test and debug your game easily with Qt Creator and Qt Test

Who this book is for

If you want to create great graphical user interfaces and astonishing games with Qt, this book is ideal for you. No previous knowledge of Qt is required; however knowledge of C++ is mandatory.

Enhance your cross-platform programming abilities with the powerful features and capabilities of Qt 6

Key Features

- Leverage Qt and C++ capabilities to create modern, cross-platform applications that can run on a wide variety of software applications
- Explore what's new in Qt 6 and understand core concepts in depth
- Build professional customized GUI applications with the help of Qt Creator

Book Description

Qt is a cross-platform application development framework widely used for developing

applications that can run on a wide range of hardware platforms with little to no change in the underlying codebase. If you have basic knowledge of C++ and want to build desktop or mobile applications with a modern graphical user interface (GUI), Qt is the right choice for you. Cross-Platform Development with Qt 6 and Modern C++ helps you understand why Qt is one of the favorite GUI frameworks adopted by industries worldwide, covering the essentials of programming GUI apps across a multitude of platforms using the standard C++17 and Qt 6 features. Starting with the fundamentals of the Qt framework, including the features offered by Qt Creator, this practical guide will show you how to create classic user interfaces using Qt Widgets and touch-friendly user interfaces using Qt Quick. As you advance, you'll explore the Qt Creator IDE for developing applications for multiple desktops as well as for embedded and mobile platforms. You will also learn advanced concepts about signals and slots. Finally, the book takes you through debugging and testing your app with Qt Creator IDE. By the end of this book, you'll be able to build cross-platform applications with a modern GUI along with the speed and power of native apps. What you will learn Write cross-platform code using the Qt framework to create interactive applications Build a desktop application using Qt Widgets Create a touch-friendly user interface with

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Qt Quick Develop a mobile application using Qt and deploy it on different platforms Get to grips with Model/View programming with Qt Widgets and Qt Quick Discover Qt's graphics framework and add animations to your user interface Write test cases using the Qt Test framework and debug code Build a translation-aware application Follow best practices in Qt to write high-performance code Who this book is for This book is for application developers who want to use C++ and Qt to create modern, responsive applications that can be deployed to multiple operating systems such as Microsoft Windows, Apple macOS, and Linux desktop platforms. Although no prior knowledge of Qt is expected, beginner-level knowledge of the C++ programming language and object-oriented programming system (OOPs) concepts will be helpful. Master Qt's Most Powerful APIs, Patterns, and Development Practices Qt has evolved into a remarkably powerful solution for cross-platform desktop, Web, and mobile development. However, even the most experienced Qt programmers only use a fraction of its capabilities. Moreover, practical information about Qt's newest features has been scarce—until now. Advanced Qt Programming shows developers exactly how to take full advantage of Qt 4.5's and Qt 4.6's most valuable new APIs, application patterns, and development practices. Authored by Qt expert Mark Summerfield, this book

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concentrates on techniques that offer the most power and flexibility with the least added complexity. Summerfield focuses especially on model/view and graphics/view programming, hybrid desktop/Web applications, threading, and applications incorporating media and rich text. Throughout, he presents realistic, downloadable code examples, all tested on Windows, Mac OS X, and Linux using Qt 4.6 (and most tested on Qt 4.5) and designed to anticipate future versions of Qt. The book Walks through using Qt with WebKit to create innovative hybrid desktop/Internet applications Shows how to use the Phonon framework to build powerful multimedia applications Presents state-of-the-art techniques for using model/view table and tree models, QStandardItemModels, delegates, and views, and for creating custom table and tree models, delegates, and views Explains how to write more effective threaded programs with the QtConcurrent module and with the QThread class Includes detailed coverage of creating rich text editors and documents Thoroughly covers graphics/view programming: architecture, windows, widgets, layouts, scenes, and more Introduces Qt 4.6's powerful animation and state machine frameworks

Analyzing the new technology of Smartphones in great detail, this guide discusses relevant reference solutions, the role of middleware on related

operating systems, and how cell phone vendors consequently confront this growing challenge. A very detailed and cogent perspective on the world of Smartphones, the report examines its vast feature sets, reveals its impact on other leading technologies and companies, and supplies extensive case studies on how Smartphones enhance user productivity and encourage deployment of user applications.

For over 25 years, C. J. Dates *An Introduction to Database Systems* has been the authoritative resource for readers interested in gaining insight into and understanding of the principles of database systems. This exciting revision continues to provide a solid grounding in the foundations of database technology and to provide some ideas as to how the field is likely to develop in the future. The material is organized into six major parts. Part I provides a broad introduction to the concepts of database systems in general and relational systems in particular. Part II consists of a careful description of the relational model, which is the theoretical foundation for the database field as a whole. Part III discusses the general theory of database design. Part IV is concerned with transaction management. Part V shows how relational concepts are relevant to a variety of further aspects of database technology—security, distributed databases, temporal data, decision support, and so on. Finally, Part VI describes the impact of object technology on

database systems. This Seventh Edition of An Introduction to Database Systems features widely rewritten material to improve and amplify treatment of

Expand Raspberry Pi capabilities with fundamental engineering principles Exploring Raspberry Pi is the innovators guide to bringing Raspberry Pi to life. This book favors engineering principles over a 'recipe' approach to give you the skills you need to design and build your own projects. You'll understand the fundamental principles in a way that transfers to any type of electronics, electronic modules, or external peripherals, using a "learning by doing" approach that caters to both beginners and experts. The book begins with basic Linux and programming skills, and helps you stock your inventory with common parts and supplies. Next, you'll learn how to make parts work together to achieve the goals of your project, no matter what type of components you use. The companion website provides a full repository that structures all of the code and scripts, along with links to video tutorials and supplementary content that takes you deeper into your project. The Raspberry Pi's most famous feature is its adaptability. It can be used for thousands of electronic applications, and using the Linux OS expands the functionality even more. This book helps you get the most from your Raspberry Pi, but it also gives you the fundamental engineering skills you need to incorporate any electronics into any project. Develop the Linux and

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programming skills you need to build basic applications Build your inventory of parts so you can always "make it work" Understand interfacing, controlling, and communicating with almost any component Explore advanced applications with video, audio, real-world interactions, and more Be free to adapt and create with Exploring Raspberry Pi. This complete tutorial and reference assumes no previous knowledge of C, C++, objects, or patterns. Readers will walk through every core concept, one step at a time, learning through an extensive collection of Qt 4.1-tested examples and exercises. Master C++ "The Qt Way" with Modern Design Patterns and Efficient Reuse This fully updated, classroom-tested book teaches C++ "The Qt Way," emphasizing design patterns and efficient reuse. Readers will master both the C++ language and Qt libraries, as they learn to develop maintainable software with well-defined code layers and simple, reusable classes and functions. Every chapter of this edition has been improved with new content, better organization, or both. Readers will find extensively revised coverage of QObjects, Reflection, Widgets, Main Windows, Models and Views, Databases, Multi-Threaded Programming, and Reflection. This edition introduces the powerful new Qt Creator IDE; presents new multimedia APIs; and offers extended coverage of Qt Designer and C++ Integration. It has been restructured to help readers start writing

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software immediately and write robust, effective software sooner. The authors introduce several new design patterns, add many quiz questions and labs, and present more efficient solutions relying on new Qt features and best practices. They also provide an up-to-date C++ reference section and a complete application case study. Master C++ keywords, literals, identifiers, declarations, types, and type conversions. Understand classes and objects, organize them, and describe their interrelationships. Learn consistent programming style and naming rules. Use lists, functions, and other essential techniques. Define inheritance relationships to share code and promote reuse. Learn how code libraries are designed, built, and reused. Work with QObject, the base class underlying much of Qt. Build graphical user interfaces with Qt widgets. Use templates to write generic functions and classes. Master advanced reflective programming techniques. Use the Model-View framework to cleanly separate data and GUI classes. Validate input using regular expressions and other techniques. Parse XML data with SAX, DOM, and QDomStreamReader. Master today's most valuable creational and structural design patterns. Create, use, monitor, and debug processes and threads. Access databases with Qt's SQL classes. Manage memory reliably and efficiently. Understand how to effectively manage QThreads and use QtConcurrent

algorithms. Click here to obtain supplementary materials for this book.

In-depth instruction and practical techniques for building with the BeagleBone embedded Linux platform *Exploring BeagleBone* is a hands-on guide to bringing gadgets, gizmos, and robots to life using the popular BeagleBone embedded Linux platform. Comprehensive content and deep detail provide more than just a BeagleBone instruction manual—you'll also learn the underlying engineering techniques that will allow you to create your own projects. The book begins with a foundational primer on essential skills, and then gradually moves into communication, control, and advanced applications using C/C++, allowing you to learn at your own pace. In addition, the book's companion website features instructional videos, source code, discussion forums, and more, to ensure that you have everything you need. The BeagleBone's small size, high performance, low cost, and extreme adaptability have made it a favorite development platform, and the Linux software base allows for complex yet flexible functionality. The BeagleBone has applications in smart buildings, robot control, environmental sensing, to name a few; and, expansion boards and peripherals dramatically increase the possibilities. *Exploring BeagleBone* provides a reader-friendly guide to the device, including a crash course in computer

engineering. While following step by step, you can:

- Get up to speed on embedded Linux, electronics, and programming Master interfacing electronic circuits, buses and modules, with practical examples
- Explore the Internet-connected BeagleBone and the BeagleBone with a display
- Apply the BeagleBone to sensing applications, including video and sound
- Explore the BeagleBone's Programmable Real-Time Controllers

Hands-on learning helps ensure that your new skills stay with you, allowing you to design with electronics, modules, or peripherals even beyond the BeagleBone. Insightful guidance and online peer support help you transition from beginner to expert as you master the techniques presented in *Exploring BeagleBone*, the practical handbook for the popular computing platform.

Blend the power of Qt with OpenCV to build cross-platform computer vision applications

Key Features ?

- Start creating robust applications with the power of OpenCV and Qt combined ?
- Learn from scratch how to develop cross-platform computer vision applications ?
- Accentuate your OpenCV applications by developing them with Qt

Book Description

Developers have been using OpenCV library to develop computer vision applications for a long time. However, they now need a more effective tool to get the job done and in a much better and modern way. Qt is one of the major frameworks available for this task at the moment. This book will teach you to

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develop applications with the combination of OpenCV 3 and Qt5, and how to create cross-platform computer vision applications. We'll begin by introducing Qt, its IDE, and its SDK. Next you'll learn how to use the OpenCV API to integrate both tools, and see how to configure Qt to use OpenCV. You'll go on to build a full-fledged computer vision application throughout the book. Later, you'll create a stunning UI application using the Qt widgets technology, where you'll display the images after they are processed in an efficient way. At the end of the book, you'll learn how to convert OpenCV Mat to Qt QImage. You'll also see how to efficiently process images to filter them, transform them, detect or track objects as well as analyze video. You'll become better at developing OpenCV applications.

What you will learn ?

- Get an introduction to Qt IDE and SDK ?
- Be introduced to OpenCV and see how to communicate between OpenCV and Qt ?
- Understand how to create UI using Qt Widgets ?
- Learn to develop cross-platform applications using OpenCV 3 and Qt 5 ?
- Explore the multithreaded application development features of Qt5 ?
- Improve OpenCV 3 application development using Qt5 ?
- Build, test, and deploy Qt and OpenCV apps, either dynamically or statically ?
- See Computer Vision technologies such as filtering and transformation of images, detecting and matching objects, template matching, object tracking, video and motion analysis,

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and much more ? Be introduced to QML and Qt Quick for iOS and Android application development Who this book is for This book is for readers interested in building computer vision applications. Intermediate knowledge of C++ programming is expected. Even though no knowledge of Qt5 and OpenCV 3 is assumed, if you're familiar with these frameworks, you'll benefit.

Master application development by writing succinct, robust, and reusable code with Qt 5 About This Book Unleash the power of Qt 5 with C++14 Integrate useful third-party libraries such as OpenCV Package and deploy your application on multiple platforms Who This Book Is For This book will appeal to developers and programmers who would like to build GUI-based applications. Knowledge of C++ is necessary and the basics of Qt would be helpful. What You Will Learn Create stunning UIs with Qt Widget and Qt Quick Develop powerful, cross-platform applications with the Qt framework Design GUIs with the Qt Designer and build a library in it for UI preview Handle user interaction with the Qt signal/slot mechanism in C++ Prepare a cross-platform project to host a third-party library Build a Qt application using the OpenCV API Use the Qt Animation framework to display stunning effects Deploy mobile apps with Qt and embedded platforms In Detail Qt 5.7 is an application development framework that provides a great user

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experience and develops full-capability applications with Qt Widgets, QML, and even Qt 3D. This book will address challenges in successfully developing cross-platform applications with the Qt framework. Cross-platform development needs a well-organized project. Using this book, you will have a better understanding of the Qt framework and the tools to resolve serious issues such as linking, debugging, and multithreading. Your journey will start with the new Qt 5 features. Then you will explore different platforms and learn to tame them. Every chapter along the way is a logical step that you must take to master Qt. The journey will end in an application that has been tested and is ready to be shipped. Style and approach This is an easy-to-follow yet comprehensive guide to building applications in Qt. Each chapter covers increasingly advanced topics, with subjects grouped according to their complexity as well as their usefulness. Packed with practical examples and explanations, Mastering Qt contains everything you need to take your applications to the next level.

Learn GUI programming using Qt4, the powerful crossplatform framework, with the only official Qt book approved by Trolltech.

Explore Qt framework and APIs for building cross-platform applications for mobile devices, embedded systems, and IoT Key Features Build cross-platform applications and deploy them across mobile and

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connected devices Design 2D and 3D UIs for embedded systems using Yocto and Qt Creator Build machine to machine automation solution using QtSensors, QtMQTT, and QtWebSockets Book Description Qt is a world-class framework, helping you to develop rich graphical user interfaces (GUIs) and multi-platform applications that run on all major desktop platforms and most mobile or embedded platforms. The framework helps you connect the dots across platforms and between online and physical experience. This book will help you leverage the fully-featured Qt framework and its modular cross-platform library classes and intuitive APIs to develop applications for mobile, IoT, and industrial embedded systems. Considerations such as screen size, device orientation changes, and small memory will be discussed. We will focus on various core aspects of embedded and mobile systems, such as connectivity, networking, and sensors; there is no IoT without sensors. You will learn how to quickly design a flexible, fast, and responsive UI that looks great. Going further, you will implement different elements in a matter of minutes and synchronize the UI elements with the 3D assets with high precision. You will learn how to create high-performance embedded systems with 3D/2D user interfaces, and deploy and test on your target hardware. The book will explore several new features, including Qt for WebAssembly. At the end

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of this book, you will learn about creating a full software stack for embedded Linux systems using Yocto and Boot to Qt for Device Creation. What you will learn Explore the latest features of Qt, such as preview for Qt for Python and Qt for WebAssembly Create fluid UIs with a dynamic layout for different sized screens Deploy embedded applications on Linux systems using Yocto Design Qt APIs for building applications for embedded and mobile devices Utilize connectivity for networked and machine automated applications Discover effective techniques to apply graphical effects using Qt Quick apps Who this book is for The book is ideal for mobile developers, embedded systems engineers and enthusiasts who are interested in building cross-platform applications with Qt. Prior knowledge of C++ is required.

Master multithreading and concurrent processing with C++ About This Book Delve into the fundamentals of multithreading and concurrency and find out how to implement them Explore atomic operations to optimize code performance Apply concurrency to both distributed computing and GPGPU processing Who This Book Is For This book is for intermediate C++ developers who wish to extend their knowledge of multithreading and concurrent processing. You should have basic experience with multithreading and be comfortable using C++ development toolchains on the command

line. What You Will Learn Deep dive into the details of the how various operating systems currently implement multithreading Choose the best multithreading APIs when designing a new application Explore the use of mutexes, spin-locks, and other synchronization concepts and see how to safely pass data between threads Understand the level of API support provided by various C++ toolchains Resolve common issues in multithreaded code and recognize common pitfalls using tools such as Memcheck, CacheGrind, DRD, Helgrind, and more Discover the nature of atomic operations and understand how they can be useful in optimizing code Implement a multithreaded application in a distributed computing environment Design a C++-based GPGPU application that employs multithreading In Detail Multithreaded applications execute multiple threads in a single processor environment, allowing developers achieve concurrency. This book will teach you the finer points of multithreading and concurrency concepts and how to apply them efficiently in C++. Divided into three modules, we start with a brief introduction to the fundamentals of multithreading and concurrency concepts. We then take an in-depth look at how these concepts work at the hardware-level as well as how both operating systems and frameworks use these low-level functions. In the next module, you will learn about the native multithreading and

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concurrency support available in C++ since the 2011 revision, synchronization and communication between threads, debugging concurrent C++ applications, and the best programming practices in C++. In the final module, you will learn about atomic operations before moving on to apply concurrency to distributed and GPGPU-based processing. The comprehensive coverage of essential multithreading concepts means you will be able to efficiently apply multithreading concepts while coding in C++. Style and approach This book is filled with examples that will help you become a master at writing robust concurrent and parallel applications in C++.

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