

Swift Artificial Intelligence Made Easy W Essential Programming Learn To Create Your Problem Solving Algorithms Today W Machine Learning Data Structures Artificial Intelligence Series

Sharpen your coding skills by exploring established computer science problems! Classic Computer Science Problems in Java challenges you with time-tested scenarios and algorithms. Summary Sharpen your coding skills by exploring established computer science problems! Classic Computer Science Problems in Java challenges you with time-tested scenarios and algorithms. You'll work through a series of exercises based in computer science fundamentals that are designed to improve your software development abilities, improve your understanding of artificial intelligence, and even prepare you to ace an interview. As you work through examples in search, clustering, graphs, and more, you'll remember important things you've forgotten and discover classic solutions to your "new" problems! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Whatever software development problem you're facing, odds are someone has already uncovered a solution. This book collects the most useful solutions devised, guiding you through a variety of challenges and tried-and-true problem-solving techniques. The principles and algorithms presented here are guaranteed to save you countless hours in project after project. About the book Classic Computer Science Problems in Java is a master class in computer programming designed around 55 exercises that have been used in computer science classrooms for years. You'll work through hands-on examples as you explore core algorithms, constraint problems, AI applications, and much more. What's inside Recursion, memoization, and bit manipulation Search, graph, and genetic algorithms Constraint-satisfaction problems K-means clustering, neural networks, and adversarial search About the reader For intermediate Java programmers. About the author David Kopec is an assistant professor of Computer Science and Innovation at Champlain College in Burlington, Vermont. Table of Contents 1 Small problems 2 Search problems 3 Constraint-satisfaction problems 4 Graph problems 5 Genetic algorithms 6 K-means clustering 7 Fairly simple neural networks 8 Adversarial search 9 Miscellaneous problems 10 Interview with Brian Goetz

Whether you're a software engineer aspiring to enter the world of deep learning, a veteran data scientist, or a hobbyist with a simple dream of making the next viral AI app, you might have wondered where to begin. This step-by-step guide teaches you how to build practical deep learning applications for the cloud, mobile, browsers, and edge devices using a hands-on approach. Relying on years of industry experience transforming deep learning research into award-winning applications, Anirudh Koul, Siddha Ganju, and Meher Kasam guide you through the process of converting an idea into something that people in the real world can use. Train, tune, and deploy computer vision models with Keras, TensorFlow, Core ML, and TensorFlow Lite Develop AI for a range of devices including Raspberry Pi, Jetson Nano, and Google Coral Explore fun projects, from Silicon Valley's Not Hotdog app to 40+ industry case studies Simulate an autonomous car in a video game environment and build a miniature version with

reinforcement learning Use transfer learning to train models in minutes Discover 50+ practical tips for maximizing model accuracy and speed, debugging, and scaling to millions of users

Design the MIND of a Robotic Thinker! " If you have any interest in AI or programming, this book is a good start. It is really a solid guide and I have to recommend it. " - Sanjin, from Amazon.com " The author did a great job. It's essentially a guide for everybody, who studying artificial intelligence or just interested in programming. " - Irvin J. Hoch, from Amazon.com " Props for the author for coming up with a lay man's illustration regarding swift programming to create AI. " - Lucinda, from Amazon.com * * INCLUDED BONUS: a Quick-start guide to Learning Swift in less than a Day! * * How would you like to Create the Next SIRI? Artificial Intelligence. One of the most brilliant creations of mankind. No longer a sci-fi fantasy, but a realistic approach to making work more efficient and lives easier. And the best news? It's not that complicated after all Does it require THAT much advanced math? NO! And are you paying THOUSANDS of dollars just to learn this information? NO! Hundreds? Not even close. Within this book's pages, you'll find GREAT coding skills to learn - and more. Just some of the questions and topics include: - Complicated scheduling problem? Here's how to solve it. - How good are your AI algorithms? Analysis for Efficiency- How to interpret a system into logical code for the AI- How would an AI system would diagnose a system? We show you...- Getting an AI agent to solve problems for you and Much, much more! World-Class Training This book breaks your training down into easy-to-understand modules. It starts from the very essentials of algorithms and program procedures, so you can write great code - even as a beginner!

Create and implement AI-based features in your Swift apps for iOS, macOS, tvOS, and watchOS. With this practical book, programmers and developers of all kinds will find a one-stop shop for AI and machine learning with Swift. Taking a task-based approach, you'll learn how to build features that use powerful AI features to identify images, make predictions, generate content, recommend things, and more. AI is increasingly essential for every developer—and you don't need to be a data scientist or mathematician to take advantage of it in your apps. Explore Swift-based AI and ML techniques for building applications. Learn where and how AI-driven features make sense. Inspect tools such as Apple's Python-powered Turi Create and Google's Swift for TensorFlow to train and build models. I: Fundamentals and Tools—Learn AI basics, our task-based approach, and discover how to build or find a dataset. II: Task Based AI—Build vision, audio, text, motion, and augmentation-related features; learn how to convert preexisting models. III: Beyond—Discover the theory behind task-based practice, explore AI and ML methods, and learn how you can build it all from scratch... if you want to

Artificial intelligence (AI) may be the most beneficial technological development of the twenty-first century. Media hype and raised expectations for results, however, have clouded understanding of the true nature of AI—including its limitations and potential. AI at War provides a balanced and practical understanding of applying AI to national security and warfighting professionals as well as a wide array of other readers.

Although the themes and findings of the chapters are relevant across the U.S. Department of Defense, to include all Services, the Joint Staff and defense agencies as well as allied and partner ministries of defense, this book is a case study of warfighting functions in the Naval Services—the U.S. Navy and U.S. Marine Corps. Sam J. Tangredi

and George Galdorisi bring together over thirty experts, ranging from former DOD officials and retired flag officers to scientists and active duty junior officers. These contributors present views on a vast spectrum of subjects pertaining to the implementation of AI in modern warfare, including strategy, policy, doctrine, weapons, and ethical concerns.

Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With `fastai`, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of `fastai`, show you how to train a model on a wide range of tasks using `fastai` and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala

Summary iOS Development with Swift is a hands-on guide to creating apps for iPhone and iPad using the Swift language. Inside, you'll be guided through every step of the process for building an app, from first idea to App Store. This book fully covers Swift 4, Xcode 9, and iOS 1. Our video course, iOS Development with Swift in Motion, is the perfect companion to this book, featuring even more projects and examples for you to dig into in the exciting world of iOS development. Find out more at our website: www.manning.com/livevideo/ios-development-with-swift-lv Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

About the Technology One billion iPhone users are waiting for the next amazing app. It's time for you to build it! Apple's Swift language makes iOS development easier than ever, offering modern language features, seamless integration with all iOS libraries, and the top-notch Xcode development environment. And with this book, you'll get started fast.

About the Book iOS Development with Swift is a hands-on guide to creating iOS apps. It takes you through the experience of building an app—from idea to App Store. After setting up your dev environment, you'll learn the basics by experimenting in Swift playgrounds. Then you'll build a simple app layout, adding features like animations and UI widgets. Along the way, you'll retrieve, format, and display data; interact with the camera and other device features; and touch on cloud and networking basics. What's Inside Create adaptive layouts Store and manage data Learn to write and debug Swift code Publish to the App Store Covers Swift 4, Xcode 9, and iOS 11 About the Reader Written for intermediate web or mobile developers. No prior experience with Swift assumed. About the Author Craig Grummitt is a successful developer, instructor, and mentor. His iOS apps have had over 100,000 downloads combined!

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Swift is the definitive language for Apple development today and it's a vital part of any iOS and macOS developer's skill set. The Mastering Swift book over the years has established itself as one of the popular choices for an in-depth and practical guide on Swift programming language amongst developers. The latest fifth edition is fully ... Artificial Intelligence: A Modern Approach offers the most comprehensive, up-to-date introduction to the theory and practice of artificial intelligence. Number one in its field, this textbook is ideal for one or two-semester, undergraduate or graduate-level courses in Artificial Intelligence.

As heard on NPR's "Science Friday," discover the book recommended by Malcolm Gladwell, Susan Cain, Daniel Pink, and Adam Grant: an "accessible, informative, and hilarious" introduction to the weird and wonderful world of artificial intelligence (Ryan North). "You look like a thing and I love you" is one of the best pickup lines ever . . . according to an artificial intelligence trained by scientist Janelle Shane, creator of the popular blog AI Weirdness. She creates silly AIs that learn how to name paint colors, create the best recipes, and even flirt (badly) with humans—all to understand the technology that governs so much of our daily lives. We rely on AI every day for recommendations, for translations, and to put cat ears on our selfie videos. We also trust AI with matters of life and death, on the road and in our hospitals. But how smart is AI really... and how does it solve problems, understand humans, and even drive self-driving cars? Shane delivers the answers to every AI question you've ever asked, and some you definitely haven't. Like, how can a computer design the perfect sandwich? What does robot-generated Harry Potter fan-fiction look like? And is the world's best Halloween costume really "Vampire Hog Bride"? In this smart, often hilarious introduction to the most interesting science of our time, Shane shows how these programs learn, fail, and adapt—and how they reflect the best and worst of humanity. You Look Like a Thing and I Love You is the perfect book for anyone curious about what the robots in our lives are thinking. "I can't think of a better way to learn about artificial intelligence, and I've never had so much fun along the way." —Adam Grant, New York Times bestselling author of Originals The one-stop resource for all your Python queries Powerful and flexible, Python is one of the most popular programming languages in the world. It's got all the right stuff for the software driving the cutting-edge of the development world—machine learning, robotics, artificial intelligence, data science, etc. The good news is that it's also pretty straightforward to learn, with a simplified syntax, natural-language flow, and an amazingly supportive user community. The latest edition of Python All-in-One For Dummies gives you an inside look at the exciting possibilities offered in the Python world and provides a springboard to launch yourself into wherever you want your coding career to take you. These 7 straightforward and friendly mini-books assume the reader is a beginning

programmer, and cover everything from the basic elements of Python code to introductions to the specific applications where you'll use it. Intended as a hands-on reference, the focus is on practice over theory, providing you with examples to follow as well as code for you to copy and start modifying in the "real world"—helping you get up and running in your area of interest almost right away. This means you'll be finishing off your first app or building and remote-controlling your own robot much faster than you can believe. Get a thorough grounding in the language basics Learn how the syntax is applied in high-profile industries Apply Python to projects in enterprise Find out how Python can get you into hot careers in AI, big data, and more Whether you're a newbie coder or just want to add Python to your magic box of tricks, this is the perfect, practical introduction—and one you'll return to as you grow your career.

Software developers need to solve various problems. Many times, these problems are the same or similar to the ones they've already encountered in other projects. Wouldn't it be great to apply the solution you've found instead of reinventing the wheel over and over again? That's precisely the reason why software design patterns exist. A design pattern is a standardized way to address a recurring problem. Relying on a proven strategy will not only save you time, but you can rest assured that it's indeed the right choice. Design patterns are the result of a long evolution process. It all started with a book published in 1994 - yes, it's that old! - called "Design Patterns - Elements of Reusable Object-Oriented Software." That's a quite tedious title, so we usually refer to it as "the book by the gang of four." The gang consists of four renowned software engineers: Erich Gamma, Ralph Johnson, Richard Helm, and John Vlissides. They identified the most significant common issues that occurred in multiple projects and developed best practices to solve them. The best part: these solutions are (programming) language-agnostic. You can use the design patterns with any object-oriented programming language. Many modern programming languages and frameworks have integrated the GoF patterns. You don't have to write additional code to support say the Iterator or the Observer. Swift is no exception. Actually, it provides many advanced language features and constructs --such as type extensions, lazy initialization, and predefined protocols -- that let us adopt and integrate the design patterns into our projects easily. This book covers all these topics and provides best practices you can apply in your upcoming projects.

The fundamental mathematical tools needed to understand machine learning include linear algebra, analytic geometry, matrix decompositions, vector calculus, optimization, probability and statistics. These topics are traditionally taught in disparate courses, making it hard for data science or computer science students, or professionals, to efficiently learn the mathematics. This self-contained textbook bridges the gap between mathematical and machine learning texts, introducing the mathematical concepts with a minimum of prerequisites. It uses these concepts to derive four central machine learning methods: linear regression,

principal component analysis, Gaussian mixture models and support vector machines. For students and others with a mathematical background, these derivations provide a starting point to machine learning texts. For those learning the mathematics for the first time, the methods help build intuition and practical experience with applying mathematical concepts. Every chapter includes worked examples and exercises to test understanding. Programming tutorials are offered on the book's web site.

Understanding the Protocol-Oriented Programming (POP) paradigm is imperative if you plan on designing and implementing software using Swift 5. In this book, you'll learn how to work with POP to approach app development more efficiently. First, we review what POP is and how it differs from the classical object-oriented programming approach. Next, we discuss the pillars of this new paradigm: protocol extensions, protocol inheritance, and protocol composition. In the last part of this book, we're going to implement a fully functional app using the protocol-oriented approach. Topics include: What's protocol-oriented programming? The pillars of POP Defining method requirements Class-bound protocols Adopting a protocol Generics and protocols Implementing an app from scratch using POP Throughout the book, you'll acquire coding skills that can be applied in real-world situations. About the Author Karoly Nyisztor is a veteran software engineer and instructor. He has worked with large companies such as Apple, Siemens, and SAP. Karoly has designed and built several enterprise frameworks, and he holds twelve patents related to inventions in the field of mobile computing. After 18 years, he left the corporate world to start his own business. Since 2016, he's fully committed to teaching. As an instructor, he aims to share his 20+ years of software development expertise. Karoly teaches Software Architecture, Object-Oriented Programming and Design, Python, Swift and iOS Programming, and other, programming-related topics. You can find his courses and books on all major platforms including Amazon, LinkedIn Learning, Pluralsight, Udemy, and iTunes.

Leverage the power of machine learning and Swift programming to build intelligent iOS applications with ease Key Features Implement effective machine learning solutions for your iOS applications Use Swift and Core ML to build and deploy popular machine learning models Develop neural networks for natural language processing and computer vision Book Description Machine learning as a field promises to bring increased intelligence to the software by helping us learn and analyse information efficiently and discover certain patterns that humans cannot. This book will be your guide as you embark on an exciting journey in machine learning using the popular Swift language. We'll start with machine learning basics in the first part of the book to develop a lasting intuition about fundamental machine learning concepts. We explore various supervised and unsupervised statistical learning techniques and how to implement them in Swift, while the third section walks you through deep learning techniques with the help of typical real-world cases. In the last section, we will dive into some hard core

topics such as model compression, GPU acceleration and provide some recommendations to avoid common mistakes during machine learning application development. By the end of the book, you'll be able to develop intelligent applications written in Swift that can learn for themselves. What you will learn Learn rapid model prototyping with Python and Swift Deploy pre-trained models to iOS using Core ML Find hidden patterns in the data using unsupervised learning Get a deeper understanding of the clustering techniques Learn modern compact architectures of neural networks for iOS devices Train neural networks for image processing and natural language processing Who this book is for iOS developers who wish to create smarter iOS applications using the power of machine learning will find this book to be useful. This book will also benefit data science professionals who are interested in performing machine learning on mobile devices. Familiarity with Swift programming is all you need to get started with this book.

This book gathers selected papers presented at International Conference on Machine Learning, Advances in Computing, Renewable Energy and Communication (MARC 2020), held in Krishna Engineering College, Ghaziabad, India, during December 17–18, 2020. This book discusses key concepts, challenges, and potential solutions in connection with established and emerging topics in advanced computing, renewable energy, and network communications. Deep learning networks are getting smaller. Much smaller. The Google Assistant team can detect words with a model just 14 kilobytes in size—small enough to run on a microcontroller. With this practical book you'll enter the field of TinyML, where deep learning and embedded systems combine to make astounding things possible with tiny devices. Pete Warden and Daniel Situnayake explain how you can train models small enough to fit into any environment. Ideal for software and hardware developers who want to build embedded systems using machine learning, this guide walks you through creating a series of TinyML projects, step-by-step. No machine learning or microcontroller experience is necessary. Build a speech recognizer, a camera that detects people, and a magic wand that responds to gestures Work with Arduino and ultra-low-power microcontrollers Learn the essentials of ML and how to train your own models Train models to understand audio, image, and accelerometer data Explore TensorFlow Lite for Microcontrollers, Google's toolkit for TinyML Debug applications and provide safeguards for privacy and security Optimize latency, energy usage, and model and binary size

Move into iOS development by getting a firm grasp of its fundamentals, including the Xcode 10 IDE, Cocoa Touch, and the latest version of Apple's acclaimed programming language, Swift 5. With this thoroughly updated guide, you'll learn the Swift language, understand Apple's Xcode development tools, and discover the Cocoa framework. Explore Swift's object-oriented concepts Become familiar with built-in Swift types Dive deep into Swift objects, protocols, and generics Tour the lifecycle of an Xcode project Learn how nibs are loaded Understand Cocoa's event-driven design Communicate with C and Objective-C Once you master the fundamentals, you'll be ready to tackle the details of iOS app development with author Matt Neuburg's companion guide, Programming iOS 13.

Ready to make amazing games for the iPhone and iPad? With Apple's Swift programming language, it's never been easier. This updated cookbook provides detailed recipes for managing a wide range of common iOS game-development issues, ranging from 2D and 3D math, SpriteKit, and OpenGL to augmented reality with ARKit. You get simple, direct solutions to common problems found in iOS game programming. Need to figure out how to give objects physical motion, or want a refresher on gaming-related math problems? This book provides sample projects and straightforward answers. All you need to get started is some familiarity with iOS development in Swift. Dive into and apply practical machine learning and dataset categorization techniques while learning Tensorflow and deep learning. This book uses convolutional neural networks to do image recognition all in the familiar and easy to work with Swift language. It begins with a basic machine learning overview and then ramps up to neural networks and convolutions and how they work. Using Swift and Tensorflow, you'll perform data augmentation, build and train large networks, and build networks for mobile devices. You'll also cover cloud training and the network you build can categorize greyscale data, such as mnist, to large scale modern approaches that can categorize large datasets, such as imagenet. Convolutional Neural Networks with Swift for Tensorflow uses a simple approach that adds progressive layers of complexity until you have arrived at the current state of the art for this field. What You'll Learn

Categorize and augment datasets Build and train large networks, including via cloud solutions Deploy complex systems to mobile devices Who This Book Is For Developers with Swift programming experience who would like to learn convolutional neural networks by example using Swift for Tensorflow as a starting point.

This is the first entry-level book on algorithmic (also known as automatic) differentiation (AD), providing fundamental rules for the generation of first- and higher-order tangent-linear and adjoint code. The author covers the mathematical underpinnings as well as how to apply these observations to real-world numerical simulation programs. Readers will find: examples and exercises, including hints to solutions; the prototype AD tools dco and dcc for use with the examples and exercises; first- and higher-order tangent-linear and adjoint modes for a limited subset of C/C++, provided by the derivative code compiler dcc; a supplementary website containing sources of all software discussed in the book, additional exercises and comments on their solutions (growing over the coming years), links to other sites on AD, and errata.

New York Times Best Seller How will Artificial Intelligence affect crime, war, justice, jobs, society and our very sense of being human? The rise of AI has the potential to transform our future more than any other technology—and there's nobody better qualified or situated to explore that future than Max Tegmark, an MIT professor who's helped mainstream research on how to keep AI beneficial. How can we grow our prosperity through automation without leaving people lacking income or purpose? What career advice should we give today's kids? How can we make future AI systems more robust, so that they do what we want without crashing, malfunctioning or getting hacked? Should we fear an arms race in lethal autonomous weapons? Will machines eventually outsmart us at all tasks, replacing humans on the job market and perhaps altogether? Will AI help life flourish like never before or give us more power than we can handle? What sort of future do you want? This book empowers you to join what may be the most important conversation of our time. It doesn't shy away from the full

range of viewpoints or from the most controversial issues—from superintelligence to meaning, consciousness and the ultimate physical limits on life in the cosmos. The significantly expanded and updated new edition of a widely used text on reinforcement learning, one of the most active research areas in artificial intelligence. Reinforcement learning, one of the most active research areas in artificial intelligence, is a computational approach to learning whereby an agent tries to maximize the total amount of reward it receives while interacting with a complex, uncertain environment. In Reinforcement Learning, Richard Sutton and Andrew Barto provide a clear and simple account of the field's key ideas and algorithms. This second edition has been significantly expanded and updated, presenting new topics and updating coverage of other topics. Like the first edition, this second edition focuses on core online learning algorithms, with the more mathematical material set off in shaded boxes. Part I covers as much of reinforcement learning as possible without going beyond the tabular case for which exact solutions can be found. Many algorithms presented in this part are new to the second edition, including UCB, Expected Sarsa, and Double Learning. Part II extends these ideas to function approximation, with new sections on such topics as artificial neural networks and the Fourier basis, and offers expanded treatment of off-policy learning and policy-gradient methods. Part III has new chapters on reinforcement learning's relationships to psychology and neuroscience, as well as an updated case-studies chapter including AlphaGo and AlphaGo Zero, Atari game playing, and IBM Watson's wagering strategy. The final chapter discusses the future societal impacts of reinforcement learning.

Introduction -- China's Sputnik moment -- Copycats in the Coliseum -- China's alternate Internet universe -- A tale of two countries -- The four waves of AI -- Utopia, dystopia, and the real AI crisis -- The wisdom of cancer -- A blueprint for human co-existence with AI -- Our global AI story

Leverage the power of Apple's Core ML to create smart iOS apps Key Features Explore the concepts of machine learning and Apple's Core ML APIs Use Core ML to understand and transform images and videos Exploit the power of using CNN and RNN in iOS applications Book Description Core ML is a popular framework by Apple, with APIs designed to support various machine learning tasks. It allows you to train your machine learning models and then integrate them into your iOS apps. Machine Learning with Core ML is a fun and practical guide that not only demystifies Core ML but also sheds light on machine learning. In this book, you'll walk through realistic and interesting examples of machine learning in the context of mobile platforms (specifically iOS). You'll learn to implement Core ML for visual-based applications using the principles of transfer learning and neural networks. Having got to grips with the basics, you'll discover a series of seven examples, each providing a new use-case that uncovers how machine learning can be applied along with the related concepts. By the end of the book, you will have the skills required to put machine learning to work in their own applications, using the Core ML APIs What you will learn Understand components of an ML project using algorithms, problems, and data Master Core ML by obtaining and importing machine learning model, and generate classes Prepare data for machine learning model and interpret results for optimized solutions Create and optimize custom layers for unsupported layers Apply CoreML to image and video data using CNN Learn the qualities of RNN to recognize sketches, and augment drawing Use Core ML transfer learning to execute style transfer on images Who this book is for Machine Learning with Core ML is for you if you are an intermediate iOS developer interested in applying machine learning to your mobile apps. This book is also for those who are machine learning developers or deep learning practitioners who

want to bring the power of neural networks in their iOS apps. Some exposure to machine learning concepts would be beneficial but not essential, as this book acts as a launchpad into the world of machine learning for developers.

Summary Now updated for Swift 5! Swift is more than just a fun language to build iOS applications with. It features a host of powerful tools that, if effectively used, can help you create even better apps with clean, crystal-clear code and awesome features. Swift in Depth is designed to help you unlock these tools and quirks and get developing next-gen apps, web services, and more! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology It's fun to create your first toy iOS or Mac app in Swift. Writing secure, reliable, professional-grade software is a different animal altogether. The Swift language includes an amazing set of high-powered features, and it supports a wide range of programming styles and techniques. You just have to roll up your sleeves and learn Swift in depth. About the Book Swift in Depth guides you concept by concept through the skills you need to build professional software for Apple platforms, such as iOS and Mac; also on the server with Linux. By following the numerous concrete examples, enlightening explanations, and engaging exercises, you'll finally grok powerful techniques like generics, efficient error handling, protocol-oriented programming, and advanced Swift patterns. Author Tjeerd in 't Veen reveals the high-value, difficult-to-discover Swift techniques he's learned through his own hard-won experience. What's inside Covers Swift 5 Writing reusable code with generics Iterators, sequences, and collections Protocol-oriented programming Understanding map, flatMap, and compactMap Asynchronous error handling with ResultBest practices in Swift About the Reader Written for advanced-beginner and intermediate-level Swift programmers. About the Author Tjeerd in 't Veen is a senior software engineer and architect in the mobile division of a large international banking firm. Table of Contents Introducing Swift in depth Modeling data with enums Writing cleaner properties Making optionals second nature Demystifying initializers Effortless error handling Generics Putting the pro in protocol-oriented programming Iterators, sequences, and collections Understanding map, flatMap, and compactMap Asynchronous error handling with Result Protocol extensions Swift patterns Delivering quality Swift code Where to Swift from here

By applying data analytics techniques and machine learning algorithms to predict disease, medical practitioners can more accurately diagnose and treat patients. However, researchers face problems in identifying suitable algorithms for pre-processing, transformations, and the integration of clinical data in a single module, as well as seeking different ways to build and evaluate models. The Handbook of Research on Disease Prediction Through Data Analytics and Machine Learning is a pivotal reference source that explores the application of algorithms to making disease predictions through the identification of symptoms and information retrieval from images such as MRIs, ECGs, EEGs, etc. Highlighting a wide range of topics including clinical decision support systems, biomedical image analysis, and prediction models, this book is ideally designed for clinicians, physicians, programmers, computer engineers, IT specialists, data analysts, hospital administrators, researchers, academicians, and graduate and post-graduate students.

Build full-stack shopping list applications from scratch for web and mobile platforms using Xcode, Vapor, and Swift Key Features Build, package, and deploy an end-to-end app solution for mobile and web with Swift 4 Increase developer productivity by creating reusable client and server components Develop backend services for your apps and websites using Vapor framework Book Description Making Swift an open-source language enabled it to share code between a native app and a server. Building a scalable and secure server backend opens up new possibilities, such as building an entire application written in one language—Swift. This book gives you a detailed walk-through of tasks such as developing a native shopping list app with Swift and creating a full-stack backend using Vapor (which serves as an API server for the

mobile app). You'll also discover how to build a web server to support dynamic web pages in browsers, thereby creating a rich application experience. You'll begin by planning and then building a native iOS app using Swift. Then, you'll get to grips with building web pages and creating web views of your native app using Vapor. To put things into perspective, you'll learn how to build an entire full-stack web application and an API server for your native mobile app, followed by learning how to deploy the app to the cloud, and add registration and authentication to it. Once you get acquainted with creating applications, you'll build a tvOS version of the shopping list app and explore how easy is it to create an app for a different platform with maximum code shareability. Towards the end, you'll also learn how to create an entire app for different platforms in Swift, thus enhancing your productivity. What you will learn

- Get accustomed to server-side programming as well as the Vapor framework
- Learn how to build a RESTful API
- Make network requests from your app and handle error states when a network request fails
- Deploy your app to Heroku using the CLI command
- Write a test for the Vapor backend
- Create a tvOS version of your shopping list app and explore code-sharing with an iOS platform
- Add registration and authentication so that users can have their own shopping lists

Who this book is for This book is for developers who are looking to build full-stack web and native mobile applications using Swift. An understanding of HTML, CSS, and JavaScript would be beneficial when building server-rendered pages with Vapor.

The book focuses on a conceptual flaw in contemporary artificial intelligence and cognitive science. Many people have discovered diverse manifestations and facets of this flaw, but the central conceptual impasse is at best only partially perceived. Its consequences, nevertheless, visit themselves as distortions and failures of multiple research projects - and make impossible the ultimate aspirations of the fields. The impasse concerns a presupposition concerning the nature of representation - that all representation has the nature of encodings: encodingism. Encodings certainly exist, but encodingism is at root logically incoherent; any programmatic research predicted on it is doomed to distortion and ultimate failure. The impasse and its consequences - and steps away from that impasse - are explored in a large number of projects and approaches. These include SOAR, CYC, PDP, situated cognition, subsumption architecture robotics, and the frame problems - a general survey of the current research in AI and Cognitive Science emerges. Interactivism, an alternative model of representation, is proposed and examined.

Discover more insight about deep learning and how to work with Swift for TensorFlow to develop intelligent apps. TensorFlow was designed for easy adoption by iOS programmers working in Swift. This book covers the established and tested concepts and ties them to modern Swift programming and applicable use in developing for iOS. Using illustrative examples, the book starts off by introducing you to basic machine learning concepts along with code snippets in Swift for TensorFlow.. Fundamentals of neural networks required to understand today's deep learning research will be covered and put in the context of working in the Swift language with the goal of developing primarily for Apple's mobile ecosystem. Other important topics covered include computation graphs, loss functions, optimization techniques, regularizing neural networks, recurrent neural networks—such as those used in Siri and Google Translate; and convolutional neural networks. You'll also learn to reuse pre-trained neural networks and work with generative models. Finally, developing and building in security to models is addressed. Swift code will be provided throughout the book to keep the concepts grounded in application within Apple's frameworks. What You'll Learn

- Write machine learning code in Swift
- Run neural networks in Apple environments
- Apply fundamental deep learning concepts to mobile app development

Who This Book Is For Programmers familiar with Swift and the basics of AI

Work with large data sets, create statistical models, and make predictions with statistical methods using the Swift programming language. The variety of problems that can be solved

using statistical methods range in fields from financial management to machine learning to quality control and much more. Those who possess knowledge of statistical analysis become highly sought after candidates for companies worldwide. Starting with an introduction to statistics and probability theory, you will learn core concepts to analyze your data's distribution. You'll get an introduction to random variables, how to work with them, and how to leverage their properties in computations. On top of the mathematics, you'll learn several essential features of the Swift language that significantly reduce friction when working with large data sets. These functionalities will prove especially useful when working with multivariate data, which applies to most information in today's complex world. Once you know how to describe a data set, you will learn how to create models to make predictions about future events. All provided data is generated from real-world contexts so that you can develop an intuition for how to apply statistical methods with Swift to projects you're working on now. You will:

- Work with real-world data using the Swift programming language
- Compute essential properties of data distributions to understand your customers, products, and processes
- Make predictions about future events and compute how robust those predictions are

This book constitutes the refereed proceedings of the 18th EPIA Conference on Artificial Intelligence, EPIA 2017, held in Porto, Portugal, in September 2017. The 69 revised full papers and 2 short papers presented were carefully reviewed and selected from a total of 177 submissions. The papers are organized in 16 tracks devoted to the following topics: agent-based modelling for criminological research (ABM4Crime), artificial intelligence in cyber-physical and distributed embedded systems (AICPDES), artificial intelligence in games (AIG), artificial intelligence in medicine (AIM), artificial intelligence in power and energy systems (AIPES), artificial intelligence in transportation systems (AITS), artificial life and evolutionary algorithms (ALEA), ambient intelligence and affective environments (AmIA), business applications of artificial intelligence (BAAI), intelligent robotics (IROBOT), knowledge discovery and business intelligence (KDBI), knowledge representation and reasoning (KRR), multi-agent systems: theory and applications (MASTA), software engineering for autonomous and intelligent systems (SE4AIS), social simulation and modelling (SSM), and text mining and applications (TeMA).

Learn Machine Learning! Machine learning is one of those topics that can be daunting at first blush. It's not clear where to start, what path someone should take and what APIs to learn in order to get started teaching machines how to learn. This is where Machine Learning by Tutorials comes in! In this book, we'll hold your hand through a number of tutorials, to get you started in the world of machine learning. We'll cover a wide range of popular topics in the field of machine learning, while developing apps that work on iOS devices.

Who This Book Is For This book is for the intermediate iOS developer who already knows the basics of iOS and Swift development, but wants to understand how machine learning works.

Topics covered in Machine Learning by Tutorials

- CoreML: Learn how to add a machine learning model to your iOS apps, and how to use iOS APIs to access it.
- Create ML: Learn how to create your own model using Apple's Create ML Tool.
- Turi Create and Keras: Learn how to tune parameters to improve your machine learning model using more advanced tools.
- Image Classification: Learn how to apply machine learning models to predict objects in an image.
- Convolutional Networks: Learn advanced machine learning techniques for predicting objects in an image with Convolutional Neural Networks (CNNs).
- Sequence Classification: Learn how you can use recurrent neural

networks (RNNs) to classify motion from an iPhone's motion sensor. Text-to-text Transform: Learn how to use machine learning to convert bodies of text between two languages. By the end of this book, you'll have a firm understanding of what machine learning is, what it can and cannot do, and how you can use machine learning in your next app!

Summary Hello Swift! is a how-to guide to programming iOS Apps with the Swift language, written from a kid's perspective. This approachable, well-illustrated, step-by-step guide takes you from beginning programming concepts all the way through developing complete apps. (Adults will like it too!) Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology It's fun to play games and explore new things on your iPhone. How amazing would it be to create your own apps? With a little practice, you can! Apple's Swift language, along with special coding playgrounds and an easy-to-use programming environment, make it easier than ever. Take it from author Tanmay Bakshi, who started programming when he was just five years old. About the Book His book, Hello Swift! iOS app programming for kids and other beginners, teaches you how to write apps for iPhones and iOS devices step by step, starting with your first line of Swift code. Packed with dozens of apps and special exercises, the book will teach you how to program by writing games, solving puzzles, and exploring what your iPhone can do. Hello Swift! gets you started. Where you go next is up to you! What's inside Crystal-clear explanations anyone can understand Kid-friendly examples, including games and puzzles Learn by doing—you'll build dozens of small apps Exercises that encourage critical thinking About the Reader Written for kids who want to learn how to program. (Psst! Adults like it, too.) About the Author Tanmay Bakshi had his first app on the iOS App Store at the age of nine. He's now the youngest IBM Champion, a Cloud Advisor, Watson Developer, TED Speaker, and Manning author! Table of Contents Get ready to build apps with Swift! Create your first app Your first real Swift code using variables I/O laboratory Computers make decisions, too! Let computers do repetitive work Knitting variables into arrays and dictionaries Reuse your code: Clean it with function detergent Reduce your code: Use less, do more with class detergent Reading and writing files Frameworks: Bookshelves of classes SpriteKit: Fun animation time Time to watch your WatchKit code Continuing your journey with Swift

If you're looking to make a career move from programmer to AI specialist, this is the ideal place to start. Based on Laurence Moroney's extremely successful AI courses, this introductory book provides a hands-on, code-first approach to help you build confidence while you learn key topics. You'll understand how to implement the most common scenarios in machine learning, such as computer vision, natural language processing (NLP), and sequence modeling for web, mobile, cloud, and embedded runtimes. Most books on machine learning begin with a daunting amount of advanced math. This guide is built on practical lessons that let you work directly with the code. You'll learn: How to build models with

TensorFlow using skills that employers desire The basics of machine learning by working with code samples How to implement computer vision, including feature detection in images How to use NLP to tokenize and sequence words and sentences Methods for embedding models in Android and iOS How to serve models over the web and in the cloud with TensorFlow Serving Build real-world Artificial Intelligence applications with Python to intelligently interact with the world around you About This Book Step into the amazing world of intelligent apps using this comprehensive guide Enter the world of Artificial Intelligence, explore it, and create your own applications Work through simple yet insightful examples that will get you up and running with Artificial Intelligence in no time Who This Book Is For This book is for Python developers who want to build real-world Artificial Intelligence applications. This book is friendly to Python beginners, but being familiar with Python would be useful to play around with the code. It will also be useful for experienced Python programmers who are looking to use Artificial Intelligence techniques in their existing technology stacks. What You Will Learn Realize different classification and regression techniques Understand the concept of clustering and how to use it to automatically segment data See how to build an intelligent recommender system Understand logic programming and how to use it Build automatic speech recognition systems Understand the basics of heuristic search and genetic programming Develop games using Artificial Intelligence Learn how reinforcement learning works Discover how to build intelligent applications centered on images, text, and time series data See how to use deep learning algorithms and build applications based on it In Detail Artificial Intelligence is becoming increasingly relevant in the modern world where everything is driven by technology and data. It is used extensively across many fields such as search engines, image recognition, robotics, finance, and so on. We will explore various real-world scenarios in this book and you'll learn about various algorithms that can be used to build Artificial Intelligence applications. During the course of this book, you will find out how to make informed decisions about what algorithms to use in a given context. Starting from the basics of Artificial Intelligence, you will learn how to develop various building blocks using different data mining techniques. You will see how to implement different algorithms to get the best possible results, and will understand how to apply them to real-world scenarios. If you want to add an intelligence layer to any application that's based on images, text, stock market, or some other form of data, this exciting book on Artificial Intelligence will definitely be your guide! Style and approach This highly practical book will show you how to implement Artificial Intelligence. The book provides multiple examples enabling you to create smart applications to meet the needs of your organization. In every chapter, we explain an algorithm, implement it, and then build a smart application.

An introduction to writing iOS and OS X apps with Apple's new programming language, covering from basic syntax through such advanced features as

closures and generics, with case studies for building complete apps from scratch. Two leaders in the field offer a compelling analysis of the current state of the art and reveal the steps we must take to achieve a truly robust artificial intelligence. Despite the hype surrounding AI, creating an intelligence that rivals or exceeds human levels is far more complicated than we have been led to believe. Professors Gary Marcus and Ernest Davis have spent their careers at the forefront of AI research and have witnessed some of the greatest milestones in the field, but they argue that a computer beating a human in Jeopardy! does not signal that we are on the doorstep of fully autonomous cars or superintelligent machines. The achievements in the field thus far have occurred in closed systems with fixed sets of rules, and these approaches are too narrow to achieve genuine intelligence. The real world, in contrast, is wildly complex and open-ended. How can we bridge this gap? What will the consequences be when we do? Taking inspiration from the human mind, Marcus and Davis explain what we need to advance AI to the next level, and suggest that if we are wise along the way, we won't need to worry about a future of machine overlords. If we focus on endowing machines with common sense and deep understanding, rather than simply focusing on statistical analysis and gathering ever larger collections of data, we will be able to create an AI we can trust--in our homes, our cars, and our doctors' offices. Rebooting AI provides a lucid, clear-eyed assessment of the current science and offers an inspiring vision of how a new generation of AI can make our lives better.

Learn Data Structures & Algorithms in Swift! Data structures and algorithms form the basis of computer programming and are the starting point for anyone looking to become a software engineer. Choosing the proper data structure and algorithm involves understanding the many details and trade-offs of using them, which can be time-consuming to learn - and confusing. This is where this book, Data Structures & Algorithms in Swift, comes to the rescue! In this book, you'll learn the nuts and bolts of how fundamental data structures and algorithms work by using easy-to-follow tutorials loaded with illustrations; you'll also learn by working in Swift playground code. Who This Book Is For This book is for developers who know the basics of Swift syntax and want a better theoretical understanding of what data structures and algorithms are to build more complex programs or ace a whiteboard interview. Topics Covered in Data Structures & Algorithms in Swift *Basic data structures and algorithms, including stacks, queues and linked lists. *How protocols can be used to generalize algorithms. *How to leverage the algorithms of the Swift standard library with your own data structures. *Trees, tries and graphs. *Building algorithms on top of other primitives. *A complete spectrum of sorting algorithms from simple to advanced. *How to think about algorithmic complexity. *Finding shortest paths, traversals, subgraphs and much more. After reading this book, you'll have a solid foundation on data structures and algorithms and be ready to solve more complex problems in your apps elegantly.

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Machine Learning Data Structures Artificial Intelligence Series

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