Getting Started With Julia Programming

By Ivo Balbaert

Programming for Beginners
Learn Julia 1.x by building apps for data analysis, visualization, machine learning, and the web
Build high-performance applications for scientific computing
Introduction to Applied Linear Algebra
Julia: High Performance Programming
A Concise Introduction with MATLAB and Julia
First Semester in Numerical Analysis with Julia
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Tanmay Teaches Julia for Beginners: A Springboard to Machine Learning for All Ages
Fundamentals for Data Science, Machine Learning and Artificial Intelligence

with Big Data and Artificial Intelligence Case Studies
The Coding Manual for Qualitative Researchers
Deep Learning and the Game of Go
The Way to Go
Learning Julia
Julia Programming for Operations Research
Julia Cookbook
Getting Started with Julia
How to Think Like a Computer Scientist
For Scientists and Engineers
Numerical Linear Algebra
Algorithms for Optimization
A Workbook to Develop Fluency in Julia Programming
An Authoritative Guide to the Production-Ready Systems in Julia (English Edition)
Discover Julia, a high-performance language for technical computing
enter the exciting world auf Junia, a high-performance language for technical computing
Julia for Data Science
Optimizations, distributed computing, multithreading, and GPU programming with Julia 1.0 and beyond, 2nd Edition
Literate Programming
Julia for Machine Learning
Beginning Julia Programming
Languages That Are Shaping the Future

TRISTIAN COMPTON

Programming for Beginners Stanford Univ Center for the Study
Learn Julia language for data science and data analytics About This Book Set up Julia's environment and start building simple programs Explore the technical aspects of Julia and its potential when it comes to speed and data processing Write efficient and high-quality code in Julia Who This Book Is For This book allows existing programmers, statisticians and data scientists to learn the Julia and take its advantage while building applications with complex numerical and scientific computations. Basic knowledge of mathematics is needed to understand the various methods that will be used or created in the book to exploit the capabilities for which Julia is made. What You Will Learn Understand Julia's ecosystem and create simple programs Master the type system and create your own types in Julia Understand Julia's type system, annotations, and conversions Define functions and understand meta-programming and multiple dispatch Create graphics and data visualizations using Julia Build programs capable of networking and parallel

computation Develop real-world applications and use connections for RDBMS and NoSQL Learn to interact with other programming languages–C and Python—using Julia In Detail Julia is a highly appropriate language for scientific computing, but it comes with all the required capabilities of a general-purpose language. It allows us to achieve C/Fortran-like performance while maintaining the concise syntax of a scripting language such as Python. It is perfect for building high-performance and concurrent applications. From the basics of its syntax to learning built-in object types, this book covers it all. This book shows you how to write effective functions, reduce code redundancies, and improve code reuse. It will be helpful for new programmers who are starting out with Julia to explore its wide and ever-growing package ecosystem and also for experienced developers/statisticians /data scientists who want to add Julia to their skill-set. The book presents the fundamentals of programming in Julia and in-depth informative examples, using a step-by-step approach. You will be taken through concepts and examples such as doing simple mathematical operations, creating loops, metaprogramming, functions, collections, multiple dispatch, and so on. By the end of the book, you will be

able to apply your skills in Julia to create and explore applications of any domain. Style and approach This book demonstrates the basics of Julia along with some data structures and testing tools that will give you enough material to get started with the language from an application standpoint. Learn Julia 1.x by building apps for data analysis, visualization, machine learning, and the web Packt Publishing Ltd Summary Deep Learning and the Game of Go teaches you how to apply the power of deep learning to complex reasoning tasks by building a Go-playing AI. After exposing you to the foundations of machine and deep learning, you'll use Python to build a bot and then teach it the rules of the game. Foreword by Thore Graepel, DeepMind Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology The ancient strategy game of Go is an incredible case study for AI. In 2016, a deep learning-based system shocked the Go world by defeating a world champion. Shortly after that, the upgraded AlphaGo Zero crushed the original bot by using deep reinforcement learning to master the game. Now, you can learn those same deep learning techniques by building your own Go bot! About the Book Deep Learning and the Game of Go introduces

deep learning by teaching you to build a Go-winning bot. As you progress, you'll apply increasingly complex training techniques and strategies using the Python deep learning library Keras. You'll enjoy watching your bot master the game of Go, and along the way, you'll discover how to apply your new deep learning skills to a wide range of other scenarios! What's inside Build and teach a self-improving game AI Enhance classical game AI systems with deep learning Implement neural networks for deep learning About the Reader All you need are basic Python skills and high school-level math. No deep learning experience required. About the Author Max Pumperla and Kevin Ferguson are experienced deep learning specialists skilled in distributed systems and data science. Together, Max and Kevin built the open source bot BetaGo. Table of Contents PART 1 - FOUNDATIONS Toward deep learning: a machine-learning introduction Go as a machine-learning problem Implementing your first Go bot PART 2 - MACHINE LEARNING AND GAME AI Playing games with tree search Getting started with neural networks Designing a neural network for Go data Learning from data: a deep-learning bot Deploying bots in the wild Learning by practice: reinforcement learning Reinforcement learning with policy gradients

Reinforcement learning with value methods Reinforcement learning with actor-critic methods PART 3 - GREATER THAN THE SUM OF ITS PARTS AlphaGo: Bringing it all together AlphaGo Zero: Integrating tree search with reinforcement learning

Build high-performance applications for scientific computing

Technics Publications

Over 40 recipes to get you up and running with programming using JuliaAbout This Book- Follow a practical approach to learn Julia programming the easy way- Get an extensive coverage of Julia's packages for statistical analysis- This recipe-based approach will help you get familiar with the key concepts in JuliWho This Book Is ForThis book is for data scientists and data analysts who are familiar with the basics of the Julia language. Prior experience of working with high-level languages such as MATLAB, Python, R, or Ruby is expected.What You Will Learn- Extract and handle your data with Julia- Uncover the concepts of metaprogramming in Julia- Conduct statistical analysis with StatsBase.jl and Distributions.jl- Build your data science models- Find out how to visualize your data with Gadfly- Explore big data concepts in JuliaIn DetailWant to handle everything that Julia can throw at you and get the most of it every day? This practical guide to programming with Julia for performing

numerical computation will make you more productive and able work with data more efficiently. The book starts with the main features of Julia to help you quickly refresh your knowledge of functions, modules, and arrays. We'll also show you how to utilize the Julia language to identify, retrieve, and transform data sets so you can perform data analysis and data manipulation.Later on, you'll see how to optimize data science programs with parallel computing and memory allocation. You'll get familiar with the concepts of package development and networking to solve numerical problems using the Julia platform.This book includes recipes on identifying and classifying data science problems, data modelling, data analysis, data manipulation, meta-programming, multidimensional arrays, and parallel computing. By the end of the book, you will acquire the skills to work more effectively with your data.Style and approachThis book has a recipe-based approach to help you grasp the concepts of Julia programming.

Introduction to Applied Linear Algebra Changhyun Kwon

This book provides the reader with a comprehensive overview of the new open source programming language Go (in its first stable and maintained release Go 1) from Google. The language is devised

with Java / C#-like syntax so as to feel familiar to the bulk of programmers today, but Go code is much cleaner and simpler to read, thus increasing the productivity of developers. You will see how Go: simplifies programming with slices, maps, structs and interfaces incorporates functional programming makes error-handling easy and secure simplifies concurrent and parallel programming with goroutines and channels And you will learn how to: make use of Go's excellent standard library program Go the idiomatic way using patterns and best practices in over 225 working examples and 135 exercises This book focuses on the aspects that the reader needs to take part in the coming software revolution using Go.

Julia: High Performance Programming

Springer

Great programmers aren't born--they're made. The industry is moving from object-oriented languages to functional languages, and you need to commit to radical improvement. New programming languages arm you with the tools and idioms you need to refine your craft. While other language primers take you through basic installation and "Hello, World," we aim higher. Each language in Seven More Languages in Seven Weeks will take you on a step-by-step journey through the most important paradigms of our time.

You'll learn seven exciting languages: Lua, Factor, Elixir, Elm, Julia, MiniKanren, and Idris. Learn from the award-winning programming series that inspired the Elixir language. Hear how other programmers across broadly different communities solve problems important enough to compel language development. Expand your perspective, and learn to solve multicore and distribution problems. In each language, you'll solve a non-trivial problem, using the techniques that make that language special. Write a fully functional game in Elm, without a single callback, that compiles to JavaScript so you can deploy it in any browser. Write a logic program in Clojure using a programming model, MiniKanren, that is as powerful as Prolog but much better at interacting with the outside world. Build a distributed program in Elixir with Lisp-style macros, rich Ruby-like syntax, and the richness of the Erlang virtual machine. Build your own object layer in Lua, a statistical program in Julia, a proof in code with Idris, and a quiz game in Factor. When you're done, you'll have written programs in five different programming paradigms that were written on three different continents. You'll have explored four languages on the leading edge, invented in the past five years, and three more radically different languages, each with

something significant to teach you.

A Concise Introduction with MATLAB and Julia

Packt Publishing Ltd

Master how to use the Julia language to solve business critical data science challenges. After covering the importance of Julia to the data science community and several essential data science principles, we start with the basics including how to install Julia and its powerful libraries. Many examples are provided as we illustrate how to leverage each Julia command, dataset, and function. Specialized script packages are introduced and described. Hands-on problems representative of those commonly encountered throughout the data science pipeline are provided, and we guide you in the use of Julia in solving them using published datasets. Many of these scenarios make use of existing packages and built-in functions, as we cover: 1. 1. An overview of the data science pipeline along with an example illustrating the key points, implemented in Julia 2. 2. Options for Julia IDEs 3. 3. Programming structures and functions 4. 4. Engineering tasks, such as importing, cleaning, formatting and storing data, as well as performing data preprocessing 5. 5. Data visualization and some simple yet powerful statistics for data exploration purposes 6. 6.

Dimensionality reduction and feature evaluation 7. 7. Machine learning methods, ranging from unsupervised (different types of clustering) to supervised ones (decision trees, random forests, basic neural networks, regression trees, and Extreme Learning Machines) 8. 8. Graph analysis including pinpointing the connections among the various entities and how they can be mined for useful insights. Each chapter concludes with a series of questions and exercises to reinforce what you learned. The last chapter of the book will guide you in creating a data science application from scratch using Julia. Packt Publishing Ltd Design and develop high performing programs with Julia About This Book Learn to code high reliability and high performance programs Stand out from the crowd by developing code that runs faster than your peers' codes This book is intended for developers who are interested in high performance technical programming. Who This Book Is For This book is for beginner and intermediate Julia programmers who are interested in high performance technical computing. You will have a basic familiarity with Julia syntax, and have written some small programs in the language. What You Will Learn Discover the secrets behind Julia's speed Get a sense of the possibilities and limitations of Julia's

performance Analyze the performance of Julia programs Measure the time and memory taken by Julia programs Create fast machine code using Julia's type information Define and call functions without compromising Julia's performance Understand number types in Julia Use Julia arrays to write high performance code Get an overview of Julia's distributed computing capabilities In Detail Julia is a high performance, high-level dynamic language designed to address the requirements of high-level numerical and scientific computing. Julia brings solutions to the complexities faced by developers while developing elegant and high performing code. Julia High Performance will take you on a journey to understand the performance characteristics of your Julia programs, and enables you to utilize the promise of near C levels of performance in Julia. You will learn to analyze and measure the performance of Julia code, understand how to avoid bottlenecks, and design your program for the highest possible performance. In this book, you will also see how Julia uses type information to achieve its performance goals, and how to use multuple dispatch to help the compiler to emit high performance machine code. Numbers and their arrays are obviously the key structures in scientific computing –

you will see how Julia's design makes them fast. The last chapter will give you a taste of Julia's distributed computing capabilities. Style and approach This is a hands-on manual that will give you good explanations about the important concepts related to Julia programming. First Semester in Numerical Analysis with Julia Prentice Hall "Julia walks like Python and runs like C". This phrase explains why Julia is fast growing as the most favoured option for data analytics and numerical computation. Julia is the fastest modern open-source language for data science, machine learning and scientific computing. Julia provides the functionality, ease-of-use and intuitive syntax of R, Python, MATLAB, SAS or Stata combined with the speed, capacity and performance of C, C++ or Java.Present books is both for beginners and experienced users. While experienced users can use this as a reference, new users can learn the fine details of julia program's composition. CHAPETRS: 1. Introduction, 2. Object Oriented programming, 3. Basic maths with Julia, 4. Complex Numbers, 5. Rational and Irrational numbers, 6. Mathematical Functions, 7.Arrays, 8. Arrays for matrix operations, 9. String,s 10. Functions, 11. Control Flow, 12. Input Output, 13. **Build complex applications with advanced Julia**

packages for image processing, neural networks, and Artificial Intelligence Packt Publishing
The Second Edition of Johnny Saldaña's international bestseller provides an in-depth guide to the multiple approaches available for coding qualitative data. Fully up to date, it includes new chapters, more coding techniques and an additional glossary. Clear, practical and authoritative, the book: -describes how coding initiates qualitative data analysis -demonstrates the writing of analytic memos -discusses available analytic software -suggests how best to use The Coding Manual for Qualitative Researchers for particular studies. In total, 32 coding methods are profiled that can be applied to a range of research genres from grounded theory to phenomenology to narrative inquiry. For each approach, Saldaña discusses the method's origins, a description of the method, practical applications, and a clearly illustrated example with analytic follow-up. A unique and invaluable reference for students, teachers, and practitioners of qualitative inquiry, this book is essential reading across the social sciences.
For Engineers and Scientists Pragmatic Bookshelf
Learn dynamic programming with Julia to build apps for data analysis, visualization, machine learning, and the web Key Features

Leverage Julia's high speed and efficiency to build fast, efficient applications Perform supervised and unsupervised machine learning and time series analysis Tackle problems concurrently and in a distributed environment Book Description Julia offers the high productivity and ease of use of Python and R with the lightning-fast speed of C++. There’s never been a better time to learn this language, thanks to its large-scale adoption across a wide range of domains, including fintech, biotech and artificial intelligence (AI). You will begin by learning how to set up a running Julia platform, before exploring its various built-in types. This Learning Path walks you through two important collection types: arrays and matrices. You’ll be taken through how type conversions and promotions work, and in further chapters you'll study how Julia interacts with operating systems and other languages. You’ll also learn about the use of macros, what makes Julia suitable for numerical and scientific computing, and how to run external programs. Once you have grasped the basics, this Learning Path goes on to how to analyze the Iris dataset using DataFrames. While building a web scraper and a web app, you’ll explore the use of functions, methods, and multiple dispatches. In the final chapters, you'll delve into machine learning,

where you'll build a book recommender system. By the end of this Learning Path, you'll be well versed with Julia and have the skills you need to leverage its high speed and efficiency for your applications. This Learning Path includes content from the following Packt products: Julia 1.0 Programming - Second Edition by Ivo Balbaert Julia Programming Projects by Adrian Salceanu What you will learn Create your own types to extend the built-in type system Visualize your data in Julia with plotting packages Explore the use of built-in macros for testing and debugging Integrate Julia with other languages such as C, Python, and MATLAB Analyze and manipulate datasets using Julia and DataFrames Develop and run a web app using Julia and the HTTP package Build a recommendation system using supervised machine learning Who this book is for If you are a statistician or data scientist who wants a quick course in the Julia programming language while building big data applications, this Learning Path is for you. Basic knowledge of mathematics and programming is a must.

Statistics with Julia

Packt Publishing Ltd

If you're just learning how to program, Julia is an excellent JIT-compiled, dynamically typed language with a clean syntax. This hands-on guide uses

Julia 1.0 to walk you through programming one step at a time, beginning with basic programming concepts before moving on to more advanced capabilities, such as creating new types and multiple dispatch. Designed from the beginning for high performance, Julia is a general-purpose language ideal for not only numerical analysis and computational science but also web programming and scripting. Through exercises in each chapter, you'll try out programming concepts as you learn them. Think Julia is perfect for students at the high school or college level as well as self-learners and professionals who need to learn programming basics. Start with the basics, including language syntax and semantics Get a clear definition of each programming concept Learn about values, variables, statements, functions, and data structures in a logical progression Discover how to work with files and databases Understand types, methods, and multiple dispatch Use debugging techniques to fix syntax, runtime, and semantic errors Explore interface design and data structures through case studies

Think Julia Cambridge University Press

This book is for you if you are a data scientist or working on any technical or scientific computation projects. The book assumes you have a basic working knowledge of high-level dynamic

languages such as MATLAB, R, Python, or Ruby.

Julia High Performance
Apress
Last Updated: December 2020 Based on Julia v1.3+ and JuMP v0.21+ The main motivation of writing this book was to help the author himself. He is a professor in the field of operations research, and his daily activities involve building models of mathematical optimization, developing algorithms for solving the problems, implementing those algorithms using computer programming languages, experimenting with data, etc. Three languages are involved: human language, mathematical language, and computer language. His team of students need to go over three different languages, which requires "translation" among the three languages. As this book was written to teach his research group how to translate, this book will also be useful for anyone who needs to learn how to translate in a similar situation. The Julia Language is as fast as C, as convenient as MATLAB, and as general as Python with a flexible algebraic modeling language for mathematical optimization problems. With the great support from Julia developers, especially the developers of the JuMP—Julia for Mathematical

Programming—package, Julia makes a perfect tool for students and professionals in operations research and related areas such as industrial engineering, management science, transportation engineering, economics, and regional science. For more information, visit: http://www.chkwon.net/julia

The Julia Language Handbook Packt Publishing Ltd

Enter the exciting world of Julia, a high-performance language for technical computing Key Features Leverage Julia's high speed and efficiency for your applications Work with Julia in a multi-core, distributed, and networked environment Apply Julia to tackle problems concurrently and in a distributed environment Book Description The release of Julia 1.0 is now ready to change the technical world by combining the high productivity and ease of use of Python and R with the lightning-fast speed of C++. Julia 1.0 programming gives you a head start in tackling your numerical and data problems. You will begin by learning how to set up a running Julia platform, before exploring its various built-in types. With the help of practical examples, this book walks you through two important collection types: arrays and matrices. In addition to this, you will be taken through how type conversions and

promotions work. In the course of the book, you will be introduced to the homo-iconicity and metaprogramming concepts in Julia. You will understand how Julia provides different ways to interact with an operating system, as well as other languages, and then you'll discover what macros are. Once you have grasped the basics, you'll study what makes Julia suitable for numerical and scientific computing, and learn about the features provided by Julia. By the end of this book, you will also have learned how to run external programs. This book covers all you need to know about Julia in order to leverage its high speed and efficiency for your applications. What you will learn Set up your Julia environment to achieve high productivity Create your own types to extend the built-in type system Visualize your data in Julia with plotting packages Explore the use of built-in macros for testing and debugging, among other uses Apply Julia to tackle problems concurrently Integrate Julia with other languages such as C, Python, and MATLAB Who this book is for Julia 1.0 Programming is for you if you are a statistician or data scientist who wants a crash course in the Julia programming language while building big data applications. A basic knowledge of mathematics is needed to understand the various methods that

are used or created during the course of the book to exploit the capabilities that Julia is designed with.

A Thorough Introduction to the Go Programming Language Apress

If you are new to Julia and want a reference that describes how to install and use Julia, this is the book you want. Many of the other Julia books available describe previous versions with examples that no longer work. The "Julia Handbook" is current as of Julia v1.02 and every example, of which there are dozens, has been tested and they all work.You will learn how to install and use the Julia REPL mode and the Jupyter Notebook mode to create and test your code. Other topics include:Data TypesFunctions and PackagesTuplesData ArraysData FramesData StructuresFlow ControlLoops and IterationInput / Output - formatted printing - writing and reading data filesLine and Scatter PlotsOther Plot TypesRandom NumbersOptimization Using Optim and JuMPThis is the book I wanted to buy when I started learning Julia but I had to write it myself to get all of the detail and up-to-date information I wanted. If you are just learning Julia you will find this to be a useful guide. If you are already using Julia you will find this to be an excellent reference book to remind you of some obscure Julia syntax.

Data Science with Julia

Packt Publishing Ltd
A comprehensive introduction to optimization with a focus on practical algorithms for the design of engineering systems. This book offers a comprehensive introduction to optimization with a focus on practical algorithms. The book approaches optimization from an engineering perspective, where the objective is to design a system that optimizes a set of metrics subject to constraints. Readers will learn about computational approaches for a range of challenges, including searching high-dimensional spaces, handling problems where there are multiple competing objectives, and accommodating uncertainty in the metrics. Figures, examples, and exercises convey the intuition behind the mathematical approaches. The text provides concrete implementations in the Julia programming language. Topics covered include derivatives and their generalization to multiple dimensions; local descent and first- and second-order methods that inform local descent; stochastic methods, which introduce randomness into the optimization process; linear constrained optimization, when both the objective function and the constraints are linear; surrogate models, probabilistic surrogate models, and using probabilistic surrogate

models to guide optimization; optimization under uncertainty; uncertainty propagation; expression optimization; and multidisciplinary design optimization. Appendixes offer an introduction to the Julia language, test functions for evaluating algorithm performance, and mathematical concepts used in the derivation and analysis of the optimization methods discussed in the text. The book can be used by advanced undergraduates and graduate students in mathematics, statistics, computer science, any engineering field, (including electrical engineering and aerospace engineering), and operations research, and as a reference for professionals.

Tanmay Teaches Julia for Beginners: A Springboard to Machine Learning for All Ages Simon and Schuster

This monograph uses the Julia language to guide the reader through an exploration of the fundamental concepts of probability and statistics, all with a view of mastering machine learning, data science, and artificial intelligence. The text does not require any prior statistical knowledge and only assumes a basic understanding of programming and mathematical notation. It is accessible to practitioners and researchers in data science, machine

learning, bio-statistics, finance, or engineering who may wish to solidify their knowledge of probability and statistics. The book progresses through ten independent chapters starting with an introduction of Julia, and moving through basic probability, distributions, statistical inference, regression analysis, machine learning methods, and the use of Monte Carlo simulation for dynamic stochastic models. Ultimately this text introduces the Julia programming language as a computational tool, uniquely addressing end-users rather than developers. It makes heavy use of over 200 code examples to illustrate dozens of key statistical concepts. The Julia code, written in a simple format with parameters that can be easily modified, is also available for download from the book's associated GitHub repository online. See what co-creators of the Julia language are saying about the book: Professor Alan Edelman, MIT: With "Statistics with Julia", Yoni and Hayden have written an easy to read, well organized, modern introduction to statistics. The code may be looked at, and understood on the static pages of a book, or even better, when running live on a computer. Everything you need is here in one nicely written self-contained reference. Dr. Viral Shah, CEO of Julia Computing: Yoni and Hayden provide a modern way to learn

statistics with the Julia programming language. This book has been perfected through iteration over several semesters in the classroom. It prepares the reader with two complementary skills - statistical reasoning with hands on experience and working with large datasets through training in Julia. *Fundamentals for Data Science, Machine Learning and Artificial Intelligence* Getting Started with Julia Design and develop high-performance programs in Julia 1.0 Key Features Learn the characteristics of high-performance Julia code Use the power of the GPU to write efficient numerical code Speed up your computation with the help of newly introduced shared memory multi-threading in Julia 1.0 Book Description Julia is a high-level, high-performance dynamic programming language for numerical computing. If you want to understand how to avoid bottlenecks and design your programs for the highest possible performance, then this book is for you. The book starts with how Julia uses type information to achieve its performance goals, and how to use multiple dispatches to help the compiler emit high-performance machine code. After that, you will learn how to analyze Julia programs and identify issues with time and memory consumption. We teach you how to use Julia's typing facilities accurately to

write high-performance code and describe how the Julia compiler uses type information to create fast machine code. Moving ahead, you'll master design constraints and learn how to use the power of the GPU in your Julia code and compile Julia code directly to the GPU. Then, you'll learn how tasks and asynchronous IO help you create responsive programs and how to use shared memory multithreading in Julia. Toward the end, you will get a flavor of Julia's distributed computing capabilities and how to run Julia programs on a large distributed cluster. By the end of this book, you will have the ability to build large-scale, high-performance Julia applications, design systems with a focus on speed, and improve the performance of existing programs. What you will learn Understand how Julia code is transformed into machine code Measure the time and memory taken by Julia programs Create fast machine code using Julia's type information Define and call functions without compromising Julia's performance Accelerate your code via the GPU Use tasks and asynchronous IO for responsive programs Run Julia programs on large distributed clusters Who this book is for This book is for beginners and intermediate Julia programmers who are interested in high-performance technical programming. A basic

knowledge of Julia programming is assumed.
with Big Data and Artificial Intelligence Case Studies iUniverse Explore the various packages in Julia that support image processing and build neural networks for video processing and object tracking. Key Features Build a full-fledged image processing application using JuliaImages Perform basic to advanced image and video stream processing with Julia's APIs Understand and optimize various features of OpenCV with easy examples Book Description Hands-On Computer Vision with Julia is a thorough guide for developers who want to get started with building computer vision applications using Julia. Julia is well suited to image processing because it's easy to use and lets you write easy-to-compile and efficient machine code. . This book begins by introducing you to Julia's image processing libraries such as Images.jl and ImageCore.jl. You'll get to grips with analyzing and transforming images using JuliaImages; some of the techniques discussed include enhancing and adjusting images. As you make your way through the chapters, you'll learn how to classify images, cluster them, and apply neural networks to solve computer vision problems. In the concluding chapters, you will explore

OpenCV applications to perform real-time computer vision analysis, for example, face detection and object tracking. You will also understand Julia's interaction with Tesseract to perform optical character recognition and build an application that brings together all the techniques we introduced previously to consolidate the concepts learned. By end of the book, you will have understood how to utilize various Julia packages and a few open source libraries such as Tesseract and OpenCV to solve computer vision problems with ease. What you will learn Analyze image metadata and identify critical data using JuliaImages Apply filters and improve image quality and color schemes Extract 2D features for image comparison using JuliaFeatures Cluster and classify images with KNN/SVM machine learning algorithms Recognize text in an image using the Tesseract library Use OpenCV to recognize specific objects or faces in images and videos Build neural network and classify images with MXNet Who this book is for Hands-On Computer Vision with Julia is for Julia developers who are interested in learning how to perform image processing and want to explore the field of computer vision. Basic knowledge of Julia will help you understand the concepts more effectively.

The Coding Manual for

Qualitative Researchers MIT Press Get started with Julia for engineering and numerical computing, especially data science, machine learning, and scientific computing applications. This book explains how Julia provides the functionality, ease-of-use and intuitive syntax of R, Python, MATLAB, SAS, or Stata combined with the speed, capacity, and performance of C, C++, or Java. You'll learn the OOP principles required to get you started, then how to do basic mathematics with Julia. Other core functionality of Julia that you'll cover, includes working with complex numbers, rational and irrational numbers, rings, and fields. Beginning Julia Programming takes you beyond these basics to harness Julia's powerful features for mathematical functions in Julia, arrays for matrix operations, plotting, and more. Along the way, you also learn how to manage strings, write functions, work with control flows, and carry out I/O to implement and leverage the mathematics needed for your data science and analysis projects. "Julia walks like Python and runs like C". This phrase explains why Julia is quickly growing as the most favored option for data analytics and numerical computation. After reading and using this book, you'll have the essential knowledge

and skills to build your first Julia-based application. What You'll Learn Obtain core skills in Julia Apply Julia in engineering and science applications Work with mathematical functions in Julia Use arrays, strings, functions, control flow, and I/O in Julia Carry out plotting and display basic graphics Who This Book Is For Those who are new to Julia; experienced users may also find this helpful as a reference.

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