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Deep Learning with Python Francois Chollet 2017-11-30 Summary Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Machine learning has made remarkable progress in recent years. We went from near-unusable speech and image recognition, to near-human accuracy. We went from machines that couldn't beat a serious Go player, to defeating a world champion. Behind this progress is deep learning—a combination of engineering advances, best practices, and theory that enables a wealth of previously impossible smart applications. About the Book Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. You'll explore challenging concepts and practice with applications in computer vision, natural-language processing, and generative models. By the time you finish, you'll have the knowledge and hands-on skills to apply deep learning in your own projects. What's Inside Deep learning from first principles Setting up your own deep-learning environment Image-classification models Deep learning for text and sequences Neural style transfer, text generation, and image generation About the Reader Readers need intermediate Python skills. No previous experience with Keras, TensorFlow, or machine learning is required. About the Author François Chollet works on deep learning at Google in Mountain View, CA. He is the creator of the Keras deep-learning library, as well as a contributor to the TensorFlow machine-learning framework. He also does deep-learning research, with a focus on computer vision and the application of machine learning to formal reasoning. His papers have been published at major conferences in the field, including the Conference on Computer Vision and Pattern Recognition (CVPR), the Conference and Workshop on Neural Information Processing Systems (NIPS), the International Conference on Learning Representations (ICLR), and others. Table of Contents PART 1 - FUNDAMENTALS OF DEEP LEARNING What is deep learning? Before we begin: the mathematical building blocks of neural networks Getting started with neural networks Fundamentals of machine learning PART 2 - DEEP LEARNING IN PRACTICE Deep learning for computer vision Deep learning for text and sequences Advanced deep-learning best practices Generative deep learning Conclusions appendix A - Installing Keras and its dependencies on Ubuntu appendix B - Running Jupyter notebooks on an EC2 GPU instance

Python High Performance Gabriele Lanaro 2017-05-24 Learn how to use Python to create efficient applications About This Book Identify the bottlenecks in your applications and solve them using the best profiling techniques Write efficient numerical code in NumPy, Cython, and Pandas Adapt your programs to run on multiple processors and machines with parallel programming Who This Book Is For The book is aimed at Python developers who want to improve the performance of their application. Basic knowledge of Python is expected What You Will Learn Write efficient numerical code with the NumPy and Pandas libraries Use Cython and Numba to achieve native performance Find bottlenecks in your Python code using profilers Write asynchronous code using Asyncio and RxPy Use Tensorflow and Theano for automatic parallelism in Python Set up and run distributed algorithms on a cluster using Dask and PySpark In Detail Python is a versatile language that has found applications in many industries. The clean syntax, rich standard library, and vast selection of third-party libraries make Python a wildly popular language. Python High Performance is a practical guide that shows how to leverage the power of both native and third-party Python libraries to build robust applications. The book explains how to use various profilers to find performance bottlenecks and apply the correct algorithm to fix them. The reader will learn how to effectively use NumPy and Cython to speed up numerical code. The book explains concepts of concurrent programming and how to implement robust and responsive applications using Reactive programming. Readers will learn how to write code for parallel architectures using Tensorflow and Theano, and use a cluster of computers for large-scale computations using technologies such as Dask and PySpark. By the end of the book, readers will have learned to achieve performance and scale from their Python applications. Style and approach A step-by-step practical guide filled with real-world use cases and examples

Learning OpenCV 3 Adrian Kaehler 2016-12-14 "This book provides a working guide to the C++ Open Source Computer Vision Library (OpenCV) version 3.x and gives a general background on the field of computer vision sufficient to help readers use OpenCV effectively."--Preface.

Trends in Computational Intelligence, Security and Internet of Things Nirmalya Kar 2020-12-29 This volume constitutes the refereed proceedings of the Third International Conference on Computational Intelligence, Security and Internet of Things, ICCISIoT 2020, held in Agartala, India, in December 2020. Due to the COVID-19 pandemic the conference was held online. The 23 full papers and 4 short papers were carefully reviewed and selected from 113 submissions. The papers are organised according to the following topics: computational intelligence, security, and internet of things.

Motion Control Report Architecture Technology Corpor 2016-01-22 Please note this is a short discount publication. In today's manufacturing environment, Motion Control plays a major role in virtually every project. The Motion Control Report provides a comprehensive overview of the technology of Motion Control: \* Design Considerations \* Technologies \* Methods to Control Motion \* Examples of Motion Control in Systems \* A Detailed Vendors List

The LabVIEW Style Book Peter A. Blume 2007-02-27 This is the eBook version of the print title. The illustrations are in color for this eBook version. Drawing on the experiences of a world-class LabVIEW development organization, The LabVIEW Style Book is the definitive guide to best practices in LabVIEW development. Leading LabVIEW development manager Peter A. Blume presents practical guidelines or "rules" for optimizing every facet of your applications: ease of use, efficiency, readability, simplicity, performance, maintainability, and robustness. Blume explains each style rule thoroughly, presenting realistic examples and illustrations. He even presents "nonconforming" examples that show what not to do—and why not. While the illustrations in the print book are in black and white, you can download full-color versions from the publisher web site for free.

Computational Fourier Optics Jim Bernard Breckinridge 2011 Computational Fourier Optics is a text that shows the reader in a tutorial form how to implement Fourier optical theory and analytic methods on the computer. A primary objective is to give students of Fourier optics the capability of programming their own basic wave optic beam propagations and imaging simulations. The book will also be of interest to professional engineers and physicists learning Fourier optics simulation techniques—either as a self-study text or a text for a short course. For more advanced study, the latter chapters and appendices provide methods and examples for modeling beams and pupil functions with more complicated structure, aberrations, and partial coherence. For a student in a course on Fourier optics, this book is a concise, accessible, and practical companion to any of several excellent textbooks on Fourier optical theory.

Kafka on the Shore Haruki Murakami 2005-01-18 Kafka on the Shore displays one of the world's great storytellers at the peak of his powers. Here we meet a teenage boy, Kafka Tamura, who is on the run, and Nakata, an aging simpleton who is drawn to Kafka for reasons that he cannot fathom. As their paths converge, acclaimed author Haruki Murakami enfolds readers in a world where cats talk, fish fall from the sky, and spirits slip out of their bodies to make love or commit murder, in what is a truly remarkable journey.

Data Mining for Business Analytics Galit Shmueli 2019-10-14 Data Mining for Business Analytics: Concepts, Techniques, and Applications in Python presents an applied approach to data mining concepts and methods, using Python software for illustration Readers will learn how to implement a variety of popular data mining algorithms in Python (a free and open-source software) to tackle business problems and opportunities. This is the sixth version of this successful text, and the first using Python. It covers both statistical and machine learning algorithms for prediction, classification, visualization, dimension reduction, recommender systems, clustering, text mining and network analysis. It also includes: A new co-author, Peter Gedeck, who brings both experience teaching business analytics courses using Python, and expertise in the application of machine learning methods to the drug-discovery process A new section on ethical issues in data mining Updates and new material based on feedback from instructors teaching MBA, undergraduate, diploma and executive courses, and from their students More than a dozen case studies demonstrating applications for the data mining techniques described End-of-chapter exercises that help readers gauge and expand their comprehension and competency of the material presented A companion website with more than two dozen data sets, and instructor materials including exercise solutions, PowerPoint slides, and case solutions Data Mining for Business Analytics: Concepts, Techniques, and Applications in Python is an ideal textbook for graduate and upper-undergraduate level courses in data mining, predictive analytics, and business analytics. This new edition is also an excellent reference for analysts, researchers, and practitioners working with quantitative methods in the fields of business, finance, marketing, computer science, and information technology. "This book has by far the most comprehensive review of business analytics methods that I have ever seen, covering everything from classical approaches such as linear and logistic regression, through to modern methods like neural networks, bagging and boosting, and even much more business specific procedures such as social network analysis and text mining. If not the bible, it is at the least a definitive manual on the subject." —Gareth M. James, University of Southern California and co-author (with Witten, Hastie and Tibshirani) of the best-selling book An Introduction to Statistical Learning, with Applications in R

TCP/IP Sockets in C Michael J. Donahoo 2009-03-02 TCP/IP Sockets in C: Practical Guide for Programmers, Second Edition is a quick and affordable way to gain the knowledge and skills needed to develop sophisticated and powerful web-based applications. The book's focused, tutorial-based approach enables the reader to master the tasks and techniques essential to virtually all client-server projects using sockets in C. This edition has been expanded to include new advancements such as support for IPv6 as well as detailed defensive programming strategies. If you program using Java, be sure to check out this book's companion, TCP/IP Sockets in Java: Practical Guide for Programmers, 2nd Edition. Includes completely new and expanded sections that address the IPv6 network environment, defensive programming, and the select() system call, thereby allowing the reader to program in accordance with the most current standards for internetworking. Streamlined and concise tutelage in conjunction with line-by-line code commentary allows readers to quickly program web-based applications without having to wade through unrelated and discursive networking tenets.

Simulation, Modeling, and Programming for Autonomous Robots Davide Brugali 2014-09-19 This book constitutes the refereed proceedings of the 4th International Conference on Simulation, Modeling, and Programming for Autonomous Robots, SIMPAR 2014, held in Bergamo, Italy, in October 2014. The 49 revised full papers presented were carefully reviewed and selected from 62 submissions. The papers are organized in topical sections on simulation, modeling, programming, architectures, methods and tools, and systems

and applications.

**The Zynq Book** Louise H. Crockett 2014 This book is about the Zynq-7000 All Programmable System on Chip, the family of devices from Xilinx that combines an application-grade ARM Cortex-A9 processor with traditional FPGA logic fabric. Catering for both new and experienced readers, it covers fundamental issues in an accessible way, starting with a clear overview of the device architecture, and an introduction to the design tools and processes for developing a Zynq SoC. Later chapters progress to more advanced topics such as embedded systems development, IP block design and operating systems. Maintaining a 'real-world' perspective, the book also compares Zynq with other device alternatives, and considers end-user applications. The Zynq Book is accompanied by a set of practical tutorials hosted on a companion website. These tutorials will guide the reader through first steps with Zynq, following on to a complete, audio-based embedded systems design.

**Programming Robots with ROS** Morgan Quigley 2015-11-16 Want to develop novel robot applications, but don't know how to write a mapping or object-recognition system? You're not alone, but you're certainly not without help. By combining real-world examples with valuable knowledge from the Robot Operating System (ROS) community, this practical book provides a set of motivating recipes for solving specific robotics use cases. Ideal for enthusiasts, from students in robotics clubs to professional robotics scientists and engineers, each recipe describes a complete solution using ROS open source libraries and tools. You'll learn how to complete tasks described in the recipes, as well as how to configure and recombine components for other tasks. If you're familiar with Python, you're ready to go. Learn fundamentals, including key ROS concepts, tools, and patterns Program robots that perform an increasingly complex set of behaviors, using the powerful packages in ROS See how to easily add perception and navigation abilities to your robots Integrate your own sensors, actuators, software libraries, and even a whole robot into the ROS ecosystem Learn tips and tricks for using ROS tools and community resources, debugging robot behavior, and using C++ in ROS

**Programming C# 5.0** Ian Griffiths 2012-10-11 After a dozen years of incremental changes, C# has become one of the most versatile programming languages available. With this comprehensive guide, you'll learn just how powerful the combination of C# 5.0 and .NET 4.5 can be. Author Ian Griffiths guides you through C# 5.0 fundamentals and teaches you techniques for building web and desktop applications, including Windows 8-style apps. Completely rewritten for experienced programmers, this book provides many code examples to help you work with the nuts and bolts of C# code, such as generics, dynamic typing, and the new asynchronous programming features. You'll also get up to speed on XAML, ASP.NET, LINQ, and other .NET tools. Discover how C# supports fundamental coding features such as classes, other custom types, collections, and error handling Understand the differences between dynamic and static typing in C# Query and process diverse data sources such as in-memory object models, databases, and XML documents with LINQ Use .NET's multithreading features to exploit your computer's parallel processing capabilities Learn how the new asynchronous language features can help improve application responsiveness and scalability Use XAML to create Windows 8-style, phone, and classic desktop applications

**Photonics Applications in Astronomy, Communications, Industry, and High-energy Physics Experiments** Ryszard S. Romaniuk 2003

**Advances in VLSI, Signal Processing, Power Electronics, IoT, Communication and Embedded Systems** Shubhakar Kalya 2021-04-10 This book comprises select peer-reviewed papers from the International Conference on VLSI, Signal Processing, Power Electronics, IoT, Communication and Embedded Systems (VSPICE-2020). The book provides insights into various aspects of the emerging fields in the areas Electronics and Communication Engineering as a holistic approach. The various topics covered in this book include VLSI, embedded systems, signal processing, communication, power electronics and internet of things. This book mainly focuses on the most recent innovations, trends, concerns and practical challenges and their solutions. This book will be useful for academicians, professionals and researchers in the area of electronics and communications and electrical engineering.

**SystemVerilog For Design** Stuart Sutherland 2013-12-01 SystemVerilog is a rich set of extensions to the IEEE 1364-2001 Verilog Hardware Description Language (Verilog HDL). These extensions address two major aspects of HDL based design. First, modeling very large designs with concise, accurate, and intuitive code. Second, writing high-level test programs to efficiently and effectively verify these large designs. This book, SystemVerilog for Design, addresses the first aspect of the SystemVerilog extensions to Verilog. Important modeling features are presented, such as two-state data types, enumerated types, user-defined types, structures, unions, and interfaces. Emphasis is placed on the proper usage of these enhancements for simulation and synthesis. A companion to this book, SystemVerilog for Verification, covers the second aspect of SystemVerilog.

**Proceedings of the Third International Conference on Computational Intelligence and Informatics** K. Srujan Raju 2020-03-17 This book features high-quality papers presented at the International Conference on Computational Intelligence and Informatics (ICCI 2018), which was held on 28–29 December 2018 at the Department of Computer Science and Engineering, JNTUH College of Engineering, Hyderabad, India. The papers focus on topics such as data mining, wireless sensor networks, parallel computing, image processing, network security, MANETS, natural language processing and Internet of things.

**Soft Computing Applications** Valentina Emilia Balas 2020-08-17 This book presents the proceedings of the 8th International Workshop on Soft Computing Applications, SOFA 2018, held on 13–15 September 2018 in Arad, Romania. The workshop was organized by Aurel Vlaicu University of Arad, in conjunction with the Institute of Computer Science, Iasi Branch of the Romanian Academy, IEEE Romanian Section, Romanian Society of Control Engineering and Technical Informatics – Arad Section, General Association of Engineers in Romania – Arad Section and BTM Resources Arad. The papers included in these proceedings, published post-conference, cover the research including Knowledge-Based Technologies for Web Applications, Cloud Computing, Security Algorithms and Computer Networks, Business Process Management, Computational Intelligence in Education and Modelling and Applications in Textiles and many other areas related to the Soft Computing. The book is directed to professors, researchers, and graduate students in area of soft computing techniques and applications.

**Dive Into Deep Learning** Joanne Quinn 2019-07-15 The leading experts in system change and learning, with their school-based partners around the world, have created this essential companion to their runaway best-seller, Deep Learning: Engage the World Change the World. This hands-on guide provides a roadmap for building capacity in teachers, schools, districts, and systems to design deep learning, measure progress, and assess conditions needed to activate and sustain innovation. Dive Into Deep Learning: Tools for Engagement is rich with resources educators need to construct and drive meaningful deep learning experiences in order to develop the kind of mindset and know-how that is crucial to becoming a problem-solving change agent in our global society. Designed in full color, this easy-to-use guide is loaded with tools, tips, protocols, and real-world examples. It includes: • A framework for deep learning that provides a pathway to develop the six global competencies needed to flourish in a complex world — character, citizenship, collaboration, communication, creativity, and critical thinking. • Learning progressions to help educators analyze student work and measure progress. • Learning design rubrics, templates and examples for incorporating the four elements of learning design: learning partnerships, pedagogical practices, learning environments, and leveraging digital. • Conditions rubrics, teacher self-assessment tools, and planning guides to help educators build, mobilize, and sustain deep learning in schools and districts. Learn about, improve, and expand your world of learning. Put the joy back into learning for students and adults alike. Dive into deep learning to create learning experiences that give purpose, unleash student potential, and transform not only learning, but life itself.

**FPGAs for Software Programmers** Dirk Koch 2016-06-17 This book makes powerful Field Programmable Gate Array (FPGA) and reconfigurable technology accessible to software engineers by covering different state-of-the-art high-level synthesis approaches (e.g., OpenCL and several C-to-gates compilers). It introduces FPGA technology, its programming model, and how various applications can be implemented on FPGAs without going through low-level hardware design phases. Readers will get a realistic sense for problems that are suited for FPGAs and how to implement them from a software designer's point of view. The authors demonstrate that FPGAs and their programming model reflect the needs of stream processing problems much better than traditional CPU or GPU architectures, making them well-suited for a wide variety of systems, from embedded systems performing sensor processing to large setups for Big Data number crunching. This book serves as an invaluable tool for software designers and FPGA design engineers who are interested in high design productivity through behavioural synthesis, domain-specific compilation, and FPGA overlays. Introduces FPGA technology to software developers by giving an overview of FPGA programming models and design tools, as well as various application examples; Provides a holistic analysis of the topic and enables developers to tackle the architectural needs for Big Data processing with FPGAs; Explains the reasons for the energy efficiency and performance benefits of FPGA processing; Provides a user-oriented approach and a sense for where and how to apply FPGA technology.

**Perception and Machine Intelligence** Malay K. Kundu 2012-01-12 This book constitutes the proceedings of the First Indo-Japanese conference on Perception and Machine Intelligence, PerMI 2012, held in Kolkata, India, in January 2012. The 41 papers, presented together with 1 keynote paper and 3 plenary papers, were carefully reviewed and selected for inclusion in the book. The papers are organized in topical sections named perception; human-computer interaction; e-nose and e-tongue; machine intelligence and application; image and video processing; and speech and signal processing.

**Proceedings of the International Conference on Soft Computing Systems** L. Padma Suresh 2015-12-07 The book is a collection of high-quality peer-reviewed research papers presented in International Conference on Soft Computing Systems (ICSCS 2015) held at Noorul Islam Centre for Higher Education, Chennai, India. These research papers provide the latest developments in the emerging areas of Soft Computing in Engineering and Technology. The book is organized in two volumes and discusses a wide variety of industrial, engineering and scientific applications of the emerging techniques. It presents invited papers from the inventors/originators of new applications and advanced technologies.

**Python High Performance Programming** Gabriele Lanaro 2013-12 An exciting, easy-to-follow guide illustrating the techniques to boost the performance of Python code, and their applications with plenty of hands-on examples. If you are a programmer who likes the power and simplicity of Python and would like to use this language for performance-critical applications, this book is ideal for you. All that is required is a basic knowledge of the Python programming language. The book will cover basic and advanced topics so will be great for you whether you are a new or a seasoned Python developer.

**The Zebrafish: Disease Models and Chemical Screens** 2011-09-09 This volume of Methods in Cell Biology is the 3e, and provides comprehensive compendia of laboratory protocols and reviews covering all the new methods developed since 2004. This new volume on Disease Models and Chemical Screens, covers two rapidly emerging and compelling applications of the zebrafish. Details state-of-the art zebrafish protocols, delineating critical steps in the procedures as well as potential pitfalls This volume concentrates on Disease Models and Chemical Screens

**A Systematic Approach to Learning Robot Programming with ROS** Wyatt Newman 2017-09-15 A Systematic Approach to Learning Robot Programming with ROS provides a comprehensive, introduction to the essential components of ROS through detailed explanations of simple code examples along with the corresponding theory of operation. The book explores the organization of ROS, how to understand ROS packages, how to use ROS tools, how to incorporate existing ROS packages into new applications, and how to develop new packages for robotics and automation. It also facilitates continuing education by preparing the reader to better understand the existing on-line documentation. The book is organized into six parts. It begins with an introduction to ROS foundations, including writing ROS nodes and ROS tools. Messages, Classes, and Servers are also covered. The second part of the book features simulation and visualization with ROS, including coordinate transforms. The next part of the book discusses perceptual processing in ROS. It includes coverage of using cameras in ROS, depth imaging and point clouds, and point cloud processing. Mobile robot control and navigation in ROS is featured in the fourth part of the book The fifth section of the book contains coverage of robot arms in ROS. This section explores robot arm kinematics, arm motion planning, arm control with the Baxter Simulator, and an object-grabber package. The last part of the book focuses on system integration and higher-level control, including perception-based and mobile manipulation.

This accessible text includes examples throughout and C++ code examples are also provided at [https://github.com/wsnewman/learning\\_ros](https://github.com/wsnewman/learning_ros)

**ICCCE 2019 Amit Kumar 2019-08-02** This book is a collection research papers and articles from the 2nd International Conference on Communications and Cyber-Physical Engineering (ICCCE – 2019), held in Pune, India in Feb 2019. Discussing the latest developments in voice and data communication engineering, cyber-physical systems, network science, communication software, image- and multimedia processing research and applications, as well as communication technologies and other related technologies, it includes contributions from both academia and industry.

**Advanced Machine Learning Technologies and Applications Aboul Ella Hassanien 2014-11-04** This book constitutes the refereed proceedings of the Second International Conference on Advanced Machine Learning Technologies and Applications, AMLTA 2014, held in Cairo, Egypt, in November 2014. The 49 full papers presented were carefully reviewed and selected from 101 initial submissions. The papers are organized in topical sections on machine learning in Arabic text recognition and assistive technology; recommendation systems for cloud services; machine learning in watermarking/authentication and virtual machines; features extraction and classification; rough/fuzzy sets and applications; fuzzy multi-criteria decision making; Web-based application and case-based reasoning construction; social networks and big data sets.

**Internet of Things and Its Applications Sachi Nandan Mohanty 2021-11-25** This book offers a holistic approach to the Internet of Things (IoT) model, covering both the technologies and their applications, focusing on uniquely identifiable objects and their virtual representations in an Internet-like structure. The authors add to the rapid growth in research on IoT communications and networks, confirming the scalability and broad reach of the core concepts. The book is filled with examples of innovative applications and real-world case studies. The authors also address the business, social, and legal aspects of the Internet of Things and explore the critical topics of security and privacy and their challenges for both individuals and organizations. The contributions are from international experts in academia, industry, and research.

**The Zynq Book Tutorials for Zybo and Zedboard Louise H Crockett 2015-08-12** This book comprises a set of five tutorials, and provides a practical introduction to working with Zynq-7000 All Programmable System on Chip, the family of devices from Xilinx that combines an application-grade ARM Cortex-A9 processor with traditional FPGA logic fabric. It is a companion text for 'The Zynq Book' (ISBN-13: 978-0992978709). The tutorials target two popular Zynq development boards: the ZedBoard, and the lower cost Zybo. Working through, the reader will take first steps with the Vivado integrated development environment and Software Developers Kit (SDK), and be introduced to the methodology of developing embedded systems based on Zynq. Different methods of creating Intellectual Property (IP) cores are demonstrated, including the use of Vivado High Level Synthesis (HLS), and these IPs are later combined to form a complete audio-based embedded system. These tutorials are set at the introductory level, and are suitable for undergraduate / postgraduate teaching, as well as self-learning by researchers, professional engineers, and hobbyists. Example and support files can be downloaded from the book's companion website.

**Emerging Technologies in Data Mining and Information Security João Manuel R. S. Tavares 2021-05-04** This book features research papers presented at the International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2020) held at the University of Engineering & Management, Kolkata, India, during July 2020. The book is organized in three volumes and includes high-quality research work by academicians and industrial experts in the field of computing and communication, including full-length papers, research-in-progress papers, and case studies related to all the areas of data mining, machine learning, Internet of things (IoT), and information security.

**Raspberry Pi Projects For Dummies Mike Cook 2015-07-13** Join the Raspberry revolution with these fun and easy Pi projects The Raspberry Pi has opened up a whole new world of innovation for everyone from hardware hackers and programmers to students, hobbyists, engineers, and beyond. Featuring a variety of hands-on projects, this easy-to-understand guide walks you through every step of the design process and will have you creating like a Raspberry Pi pro in no time. You'll learn how to prepare your workspace, assemble the necessary tools, work with test equipment, and find your way around the Raspberry Pi before moving on to a series of fun, lively projects that brings some power to your plain ol' Pi. Introduces Raspberry Pi basics and gives you a solid understanding of all the essentials you'll need to take on your first project Includes an array of fun and useful projects that show you how to do everything from creating a magic light wand to enhancing your designs with Lego sensors, installing and writing games for the RISC OS, building a transistor tester, and more Provides an easy, hands-on approach to learning more about electronics, programming, and interaction design for Makers and innovators of all ages Bring the power of Pi to your next cool creation with Raspberry Pi Projects For Dummies!

**Computer Vision Simon J. D. Prince 2012-06-18** A modern treatment focusing on learning and inference, with minimal prerequisites, real-world examples and implementable algorithms.

**HCI International 2020 - Posters Constantine Stephanidis 2020-07-15** The three-volume set CCIS 1224, CCIS 1225, and CCIS 1226 contains the extended abstracts of the posters presented during the 21st International Conference on Human-Computer Interaction, HCII 2020, which took place in Copenhagen, Denmark, in July 2020.\* HCII 2020 received a total of 6326 submissions, of which 1439 papers and 238 posters were accepted for publication in the pre-conference proceedings after a careful reviewing process.

The 238 papers presented in these three volumes are organized in topical sections as follows: Part I: design and evaluation methods and tools; user characteristics, requirements and preferences; multimodal and natural interaction; recognizing human psychological states; user experience studies; human perception and cognition. -AI in HCI. Part II: virtual, augmented and mixed reality; virtual humans and motion modelling and tracking; learning technology. Part III: universal access, accessibility and design for the elderly; smartphones, social media and human behavior; interacting with cultural heritage; human-vehicle interaction; transport, safety and crisis management; security, privacy and trust; product and service design. \*The conference was held virtually due to the COVID-19 pandemic. The chapter ""Developing an Interactive Tabletop Mediated Activity to Induce Collaboration by Implementing Design Considerations Based on Cooperative Learning Principles"" is available open access under a Creative Commons Attribution 4.0 International License via [link.springer.com](http://link.springer.com).

**THE WAVELET TRANSFORM Ram Shankar Pathak 2009-11-01** The wavelet transform has emerged as one of the most promising function transforms with great potential in applications during the last four decades. The present monograph is an outcome of the recent researches by the author and his co-workers, most of which are not available in a book form. Nevertheless, it also contains the results of many other celebrated workers of the field. The aim of the book is to enrich the theory of the wavelet transform and to provide new directions for further research in theory and applications of the wavelet transform. The book does not contain any sophisticated Mathematics. It is intended for graduate students of Mathematics, Physics and Engineering sciences, as well as interested researchers from other fields. The Fourier transform has wide applications in Pure and Applied Mathematics, Physics and Engineering sciences; but sometimes one has to make compromise with the results obtained by the Fourier transform with the physical intuitions. The reason is that the Fourier transform does not reflect the evolution over time of the (physical) spectrum and thus it contains no local information. The continuous wavelet transform (Wf)(b,a), involving wavelet  $\psi$ , translation parameter  $b$  and dilation parameter  $a$ , overcomes these drawbacks of the Fourier transform by representing signals (time dependent functions) in the phase space (time/frequency) plane with a local frequency resolution. The Fourier transform is  $p$  restricted to the domain  $L(R)$  with  $1 \leq p \leq 2$ , whereas the wavelet transform can be defined for  $1 \leq p < \infty$

**OpenCV 3 Blueprints Joseph Howse 2015-11-10** Expand your knowledge of computer vision by building amazing projects with OpenCV 3 About This Book Build computer vision projects to capture high-quality image data, detect and track objects, process the actions of humans or animals, and much more Discover practical and interesting innovations in computer vision while building atop a mature open-source library, OpenCV 3 Familiarize yourself with multiple approaches and theories wherever critical decisions need to be made Who This Book Is For This book is ideal for you if you aspire to build computer vision systems that are smarter, faster, more complex, and more practical than the competition. This is an advanced book intended for those who already have some experience in setting up an OpenCV development environment and building applications with OpenCV. You should be comfortable with computer vision concepts, object-oriented programming, graphics programming, IDEs, and the command line. What You Will Learn Select and configure camera systems to see invisible light, fast motion, and distant objects Build a "camera trap", as used by nature photographers, and process photos to create beautiful effects Develop a facial expression recognition system with various feature extraction techniques and machine learning methods Build a panorama Android application using the OpenCV stitching module in C++ with NDK support Optimize your object detection model, make it rotation invariant, and apply scene-specific constraints to make it faster and more robust Create a person identification and registration system based on biometric properties of that person, such as their fingerprint, iris, and face Fuse data from videos and gyroscopes to stabilize videos shot from your mobile phone and create hyperlapse style videos In Detail Computer vision is becoming accessible to a large audience of software developers who can leverage mature libraries such as OpenCV. However, as they move beyond their first experiments in computer vision, developers may struggle to ensure that their solutions are sufficiently well optimized, well trained, robust, and adaptive in real-world conditions. With sufficient knowledge of OpenCV, these developers will have enough confidence to go about creating projects in the field of computer vision. This book will help you tackle increasingly challenging computer vision problems that you may face in your careers. It makes use of OpenCV 3 to work around some interesting projects. Inside these pages, you will find practical and innovative approaches that are battle-tested in the authors' industry experience and research. Each chapter covers the theory and practice of multiple complementary approaches so that you will be able to choose wisely in your future projects. You will also gain insights into the architecture and algorithms that underpin OpenCV's functionality. We begin by taking a critical look at inputs in order to decide which kinds of light, cameras, lenses, and image formats are best suited to a given purpose. We proceed to consider the finer aspects of computational photography as we build an automated camera to assist nature photographers. You will gain a deep understanding of some of the most widely applicable and reliable techniques in object detection, feature selection, tracking, and even biometric recognition. We will also build Android projects in which we explore the complexities of camera motion: first in panoramic image stitching and then in video stabilization. By the end of the book, you will have a much richer understanding of imaging, motion, machine learning, and the architecture of computer vision libraries and applications! Style and approach This book covers a combination of theory and practice. We examine blueprints for specific projects and discuss the principles behind these blueprints, in detail.

**Affective Computing Rosalind W. Picard 2000-07-24** According to Rosalind Picard, if we want computers to be genuinely intelligent and to interact naturally with us, we must give computers the ability to recognize, understand, even to have and express emotions. The latest scientific findings indicate that emotions play an essential role in decision making, perception, learning, and more—that is, they influence the very mechanisms of rational thinking. Not only too much, but too little emotion can impair decision making. According to Rosalind Picard, if we want computers to be genuinely intelligent and to interact naturally with us, we must give computers the ability to recognize, understand, even to have and express emotions. Part 1 of this book provides the intellectual framework for affective computing. It includes background on human emotions, requirements for emotionally intelligent computers, applications of affective computing, and moral and social questions raised by the technology. Part 2 discusses the design and construction of affective computers. Although this material is more technical than that in Part 1, the author has kept it less technical than typical scientific publications in order to make it accessible to newcomers. Topics in Part 2 include signal-based representations of emotions, human affect recognition as a pattern recognition and learning problem, recent and ongoing efforts to build models of emotion for synthesizing emotions in computers, and the new application area of affective wearable computers.

**Applied Reconfigurable Computing Christian Hochberger 2019-04-02** This book constitutes the proceedings of the 15th International Symposium on Applied Reconfigurable Computing, ARC 2019, held in Darmstadt, Germany, in April 2019. The 20 full papers and 7 short papers presented in this volume were carefully reviewed and selected from 52 submissions. In addition, the volume contains 1 invited paper. The papers were organized in topical sections named: Applications; partial reconfiguration and security; image/video

processing; high-level synthesis; CGRAs and vector processing; architectures; design frameworks and methodology; convolutional neural networks.

Smart Trends in Computing and Communications: Proceedings of SmartCom 2020 Yu-Dong Zhang 2020-07-17 This book gathers high-quality papers presented at the International Conference on Smart Trends for Information Technology and Computer Communications (SmartCom 2020), organized by the Global Knowledge Research Foundation (GR Foundation) from 23 to 24 January 2020. It covers the state-of-the-art and emerging topics in information, computer communications, and effective strategies for their use in engineering and managerial applications. It also explores and discusses the latest technological advances in, and future directions for, information and knowledge computing and its applications.

A Shortcut Through Time George Johnson 2007-12-18 In this remarkably illustrative and thoroughly accessible look at one of the most intriguing frontiers in science and computers, award-winning New York Times writer George Johnson reveals the fascinating world of quantum computing—the holy grail of super computers where the computing power of single atoms is harnessed to create machines capable of almost unimaginable calculations in the blink of an eye. As computer chips continue to shrink in size, scientists anticipate the end of the road: A computer in which each switch is comprised of a single atom. Such a device would operate under a different set of physical laws: The laws of quantum mechanics. Johnson gently leads the curious outsider through the surprisingly simple ideas needed to understand this dream, discussing the current state of the revolution, and ultimately assessing the awesome power these machines could have to change our world.