OpenCV 2 Computer Vision
Application Programming Cookbook

Over 50 recipes to master this library of programming functions
for real-time computer vision

Robert Laganière

Opencv 2 Computer Vision Application Programming Cookbook Laganiere Robert

Jurjen Broeke,Jose Maria Mateos Perez,Javier Pascau

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   OpenCV 2 Robert Laganière,2011   <u>OpenCV Computer Vision Application Programming Cookbook Second Edition</u> Robert Laganière,2014-08-26 OpenCV 3 Computer Vision Application Programming Cookbook is appropriate for novice C programmers who want to learn how to use the OpenCV library to build computer vision applications It is also suitable for professional software developers wishing to be introduced to the concepts of computer vision programming It can also be used as a companion book in a university level computer vision courses It constitutes an excellent reference for graduate students and researchers in image processing and computer vision   **OpenCV 3 Computer Vision Application Programming Cookbook** Robert Laganiere,2017-02-09 Recipes to help you build computer vision applications that make the most of the popular C library OpenCV 3 About This Book Written to the latest gold standard specification of OpenCV 3 Master OpenCV the open source library of the computer vision community Master fundamental concepts in computer vision and image processing Learn about the important classes and functions of OpenCV with complete working examples applied to real images Who This Book Is For OpenCV 3 Computer Vision Application Programming Cookbook Third Edition is appropriate for novice C programmers who want to learn how to use the OpenCV library to build computer vision applications It is also suitable for professional software developers who wish to be introduced to the concepts of computer vision programming It can also be used as a companion book for university level computer vision courses It constitutes an excellent reference for graduate students and researchers in image processing and computer vision What You Will Learn Install and create a program using the OpenCV library Process an image by manipulating its pixels Analyze an image using histograms Segment images into homogenous regions and extract meaningful objects Apply image filters to enhance image content Exploit the image geometry in order to relay different views of a pictured scene Calibrate the camera from different image observations Detect people and objects in images using machine learning techniques Reconstruct a 3D scene from images In Detail Making your applications see has never been easier with OpenCV With it you can teach your robot how to follow your cat write a program to correctly identify the members of One Direction or even help you find the right colors for your redecoration OpenCV 3 Computer Vision Application Programming Cookbook Third Edition provides a complete introduction to the OpenCV library and explains how to build your first computer vision program You will be presented with a variety of computer vision algorithms and exposed to important concepts in image and video analysis that will enable you to build your own computer vision applications This book helps you to get started with the library and shows you how to install and deploy the OpenCV library to write effective computer vision applications following good programming practices You will learn how to read and write images and manipulate their pixels Different techniques for image enhancement and shape analysis will be presented You will learn how to detect specific image features such as lines circles or corners You will be introduced to the concepts of mathematical morphology and image filtering The most recent methods for image matching

and object recognition are described and you ll discover how to process video from files or cameras as well as how to detect and track moving objects Techniques to achieve camera calibration and perform multiple view analysis will also be explained Finally you ll also get acquainted with recent approaches in machine learning and object classification Style and approach This book will arm you with the basics you need to start writing world aware applications right from a pixel level all the way through to processing video sequences   **OpenCV 4 Computer Vision Application Programming Cookbook** David Millán Escrivá,Robert Laganiere,2019-05-03 Discover interesting recipes to help you understand the concepts of object detection image processing and facial detection Key FeaturesExplore the latest features and APIs in OpenCV 4 and build computer vision algorithmsDevelop effective robust and fail safe vision for your applicationsBuild computer vision algorithms with machine learning capabilitiesBook Description OpenCV is an image and video processing library used for all types of image and video analysis Throughout the book you ll work through recipes that implement a variety of tasks such as facial recognition and detection With 70 self contained tutorials this book examines common pain points and best practices for computer vision CV developers Each recipe addresses a specific problem and offers a proven best practice solution with insights into how it works so that you can copy the code and configuration files and modify them to suit your needs This book begins by setting up OpenCV and explains how to manipulate pixels You ll understand how you can process images with classes and count pixels with histograms You ll also learn detecting describing and matching interest points As you advance through the chapters you ll get to grips with estimating projective relations in images reconstructing 3D scenes processing video sequences and tracking visual motion In the final chapters you ll cover deep learning concepts such as face and object detection By the end of the book you ll be able to confidently implement a range to computer vision algorithms to meet the technical requirements of your complex CV projects What you will learnInstall and create a program using the OpenCV librarySegment images into homogenous regions and extract meaningful objectsApply image filters to enhance image contentExploit image geometry to relay different views of a pictured sceneCalibrate the camera from different image observationsDetect people and objects in images using machine learning techniquesReconstruct a 3D scene from imagesExplore face detection using deep learningWho this book is for If you re a CV developer or professional who already uses or would like to use OpenCV for building computer vision software this book is for you You ll also find this book useful if you re a C programmer looking to extend your computer vision skillset by learning OpenCV   **OpenCV 3 Computer Vision Application Programming Cookbook - Third Edition** Robert Laganiere,2016-12-30 Over 100 recipes to help you build computer vision applications that make the most of the popular C library OpenCV 3About This Book Written to the latest gold standard specification of OpenCV 3 Master OpenCV the open source library of the computer vision community Master fundamental concepts in computer vision and image processing Learn about the important classes and functions of OpenCV with complete working examples applied to real imagesWho This Book Is ForOpenCV 3 Computer Vision Application

Programming Cookbook Third Edition is appropriate for novice C programmers who want to learn how to use the OpenCV library to build computer vision applications It is also suitable for professional software developers who wish to be introduced to the concepts of computer vision programming It can also be used as a companion book for university level computer vision courses It constitutes an excellent reference for graduate students and researchers in image processing and computer vision What You Will Learn Install and create a program using the OpenCV library Process an image by manipulating its pixels Analyze an image using histograms Segment images into homogenous regions and extract meaningful objects Apply image filters to enhance image content Exploit the image geometry in order to relay different views of a pictured scene Calibrate the camera from different image observations Detect faces and people in images using machine learning techniquesIn DetailMaking your applications see has never been easier with OpenCV With it you can teach your robot how to follow your cat write a program to correctly identify the members of One Direction or even help you find the right colors for your redecoration OpenCV 3 Computer Vision Application Programming Cookbook Third Edition provides a complete introduction to the OpenCV library and explains how to build your first computer vision program You will be presented with a variety of computer vision algorithms and exposed to important concepts in image and video analysis that will enable you to build your own computer vision applications This book helps you to get started with the library and shows you how to install and deploy the OpenCV library to write effective computer vision applications following good programming practices You will learn how to read and write images and manipulate their pixels Different techniques for image enhancement and shape analysis will be presented You will learn how to detect specific image features such as lines circles or corners You will be introduced to the concepts of mathematical morphology and image filtering The most recent methods for image matching and object recognition are described and you ll discover how to process video from files or cameras as well as how to detect and track moving objects Techniques to achieve camera calibration and perform multiple view analysis will also be explained Finally you ll also get acquainted with recent approaches in machine learning and object classification **OpenCV Computer Vision Application Programming Cookbook** Robert Laganière,2011 OpenCV 3 Computer Vision Application Programming Cookbook is appropriate for novice C programmers who want to learn how to use the OpenCV library to build computer vision applications It is also suitable for professional software developers wishing to be introduced to the concepts of computer vision programming It can also be used as a companion book in a university level computer vision courses It constitutes an excellent reference for graduate students and researchers in image processing and computer vision Opencv Computer Vision Application Programming Cookbook ,2014 *OpenCV for Secret Agents* Joseph Howse,2015-01-28 This book is for programmers who want to expand their skills by building fun smart and useful systems with OpenCV The projects are ideal in helping you to think creatively about the uses of computer vision natural user interfaces and ubiquitous computers in your home car and hand **Computer Vision for the Web** Foat

Akhmadeev,2015-10-14 Unleash the power of the Computer Vision algorithms in JavaScript to develop vision enabled web content About This Book Explore the exciting world of image processing and face and gesture recognition and implement them in your website Develop wonderful web projects to implement Computer Vision algorithms in an effective way A fast paced guide to help you deal with real world Computer Vision applications using JavaScript libraries Who This Book Is For If you have an interest in Computer Vision or wish to apply Computer Vision algorithms such as face custom object and gesture recognition for an online application then this book is ideal for you Prior understanding of the JavaScript language and core mathematical concepts is recommended What You Will Learn Apply complex Computer Vision algorithms in your applications using JavaScript Put together different JavaScript libraries to discover objects in photos Get to grips with developing simple computer vision applications on your own Understand when and why you should use different computer vision methods Apply various image filters to images and videos Recognize and track many different objects including face and face particles using powerful face recognition algorithms Explore ways to control your browser without touching the mouse or keyboard In Detail JavaScript is a dynamic and prototype based programming language supported by every browser today JavaScript libraries boast outstanding functionalities that enable you to furnish your own Computer Vision projects making it easier to develop JavaScript based applications especially for web centric technologies It makes the implementation of Computer Vision algorithms easier as it supports scheme based functional programming This book will give you an insight into controlling your applications with gestures and head motion and readying them for the web Packed with real world tasks it begins with a walkthrough of the basic concepts of Computer Vision that the JavaScript world offers us and you ll implement various powerful algorithms in your own online application Then we move on to a comprehensive analysis of JavaScript functions and their applications Furthermore the book will show you how to implement filters and image segmentation and use tracking js and jsfeat libraries to convert your browser into Photoshop Subjects such as object and custom detection feature extraction and object matching are covered to help you find an object in a photo You will see how a complex object such as a face can be recognized by a browser as you move toward the end of the book Finally you will focus on algorithms to create a human interface By the end of this book you will be familiarized with the application of complex Computer Vision algorithms to develop your own applications without spending much time learning sophisticated theory Style and approach This book is an easy to follow project based guide that throws you directly into the excitement of the Computer Vision theme A more in less approach is followed by important concepts explained in a to the point easy to understand manner   Image Processing with ImageJ Jurjen Broeke,Jose Maria Mateos Perez,Javier Pascau,2015-11-30 Extract and analyze data from complex images with ImageJ the world s leading image processing tool About This Book Design automated image processing solutions and speed up image processing tasks with ImageJ Create quality and intuitive interfaces for image processing by developing a basic framework for ImageJ plugins Tackle even the most sophisticated datasets and complex images Who This Book Is For The

book has been created for engineers scientists and developers eager to tackle image processing with one of the leading tools available No prior knowledge of ImageJ is needed Familiarity with Java programming will be required for readers to code their own routines using ImageJ What You Will Learn Install and set up ImageJ for image processing Process images using ImageJ s built in tools Create macros to perform repetitive processing tasks Set up and use an integrated development environment for ImageJ plugins Create plugins with a user friendly interface for processing Use established ImageJ plugins for processing and quantification Generate a simple interface based on a real world example and create other interfaces for other projects Speed up interface development by setting multiple parameters interactively In Detail Advances in image processing have been vital for the scientific and technological communities making it possible to analyze images in greater detail than ever before But as images become larger and more complex advanced processing techniques are required ImageJ is built for the modern challenges of image processing it s one of the key tools in its development letting you automate basic tasks so you can focus on sophisticated in depth analysis This book demonstrates how to put ImageJ into practice It outlines its key features and demonstrates how to create your own image processing applications using macros and ImageJ plugins Once you ve got to grips with the basics of ImageJ you ll then discover how to build a number of different image processing solutions From simple tasks to advanced and automated image processing you ll gain confidence with this innovative and powerful tool however and whatever you are using it for Style and approach A step by step guide to image processing and developing macros and plugins in ImageJ The book will progress from using the built in tools to macros and finally plugins for image processing *Robot Vision: Teknik Membangun Robot Cerdas Masa Depan (Ed. Revisi)* Dr. Widodo Budiharto, S.Si., M.Kom.,Ir. Djoko Purwanto, M.Eng., Ph.D, Buku Robot Vision ini sangat tepat dibaca oleh pe ajar an peneliti dibidang Robotika Elektronika dan teknik informatika Buku ini merupakan buku pegangan utama pada mata kuliah Robotika Kecerdasan Buatan serta Robot vision Menyajikan gambaran lengkap mengenai konsep robotika robot vision dan implementasi buku layak menjadi pegangan wajib bagi penggiat dunia robotika terutama untuk merancang robot cerdas berbasis vision Materi yang disajikan Konsep robotika dan robot vision Pemrograman robot menggunakan mikrokontroler Propeller Computer Vision dengan OpenCV dan EmguCV Pemrograman Robot dan Stereo vision Navigasi Robot Implementasi Robot Vision **OpenCV Computer Vision Application Programming Cookbook Second Edition** Robert Laganière,2014 Over 50 recipes to help you build computer vision applications in C using the OpenCV library In Detail OpenCV Computer Vision Application Programming Cookbook Second Edition is your guide to the development of computer vision applications The book shows you how to install and deploy the OpenCV library to write an effective computer vision application Different techniques for image enhancement pixel manipulation and shape analysis will be presented You will also learn how to process video from files or cameras and detect and track moving objects You will also be introduced to recent approaches in machine learning and object classification This book is a comprehensive reference guide that exposes

you to practical and fundamental computer vision concepts illustrated by extensive examples What You Will Learn Install and create a program using the OpenCV library Process an image by manipulating its pixels Analyze an image using histograms Segment images into homogenous regions and extract meaningful objects Apply image filters to enhance image content Exploit image geometry in order to relate different views of a pictured scene Calibrate the camera from different image observations Detect faces and people in images using machine learning techniques Downloading the example code for this book You can download the example code files for all Packt books you have purchased from your account at http www PacktPub com If you purchased this book elsewhere you can visit http www PacktPub com support and register to have the files e mailed directly to you   OpenCV 4 Computer Vision Application Programming Cookbook - Fourth Edition David Escriva,Robert Laganiere,2019 Discover interesting recipes to help you understand the concepts of object detection image processing and facial detection Key Features Explore the latest features and APIs in OpenCV 4 and build computer vision algorithms Develop effective robust and fail safe vision for your applications Build computer vision algorithms with machine learning capabilities Book Description OpenCV is an image and video processing library used for all types of image and video analysis Throughout the book you ll work through recipes that implement a variety of tasks With 70 self contained tutorials this book examines common pain points and best practices for computer vision CV developers Each recipe addresses a specific problem and offers a proven best practice solution with insights into how it works so that you can copy the code and configuration files and modify them to suit your needs This book begins by setting up OpenCV and explains how to manipulate pixels You ll understand how you can process images with classes and count pixels with histograms You ll also learn detecting describing and matching interest points As you advance through the chapters you ll get to grips with estimating projective relations in images reconstructing 3D scenes processing video sequences and tracking visual motion In the final chapters you ll cover deep learning concepts such as face and object detection By the end of the book you ll be able to confidently implement a range of computer vision algorithms to meet the technical requirements of your complex CV projects What you will learn Install and create a program using the OpenCV library Segment images into homogenous regions and extract meaningful objects Apply image filters to enhance image content Exploit image geometry to relay different views of a pictured scene Calibrate the camera from different image observations Detect people and objects in images using machine learning techniques Reconstruct a 3D scene from images Explore face detection using deep learning Who this book is for If you re a CV developer or professional who already uses or would like to use OpenCV for building computer vision software this book is for you You ll also find this book useful if you re a C programmer looking to extend your computer vision skillset by learning OpenCV Downloading the example code for this ebook You can download the example code files for this ebook on GitHub at the following link https github   OpenCV 3 Computer Vision with Python Cookbook Aleksei Spizhevoi,Aleksandr Rybnikov,2018-03-23 OpenCV 3 is a native cross platform library for computer vision machine

learning and image processing OpenCV s convenient high level APIs hide very powerful internals designed for computational efficiency that can take advantage of multicore and GPU processing This book will help you tackle increasingly challenging computer vision problems   **Computer Vision Projects with OpenCV and Python 3** Matthew Rever,2018-12-28 Gain a working knowledge of advanced machine learning and explore Python s powerful tools for extracting data from images and videos Key FeaturesImplement image classification and object detection using machine learning and deep learningPerform image classification object detection image segmentation and other Computer Vision tasksCrisp content with a practical approach to solving real world problems in Computer VisionBook Description Python is the ideal programming language for rapidly prototyping and developing production grade codes for image processing and Computer Vision with its robust syntax and wealth of powerful libraries This book will help you design and develop production grade Computer Vision projects tackling real world problems With the help of this book you will learn how to set up Anaconda and Python for the major OSes with cutting edge third party libraries for Computer Vision You ll learn state of the art techniques for classifying images finding and identifying human postures and detecting faces within videos You will use powerful machine learning tools such as OpenCV Dlib and TensorFlow to build exciting projects such as classifying handwritten digits detecting facial features and much more The book also covers some advanced projects such as reading text from license plates from real world images using Google s Tesseract software and tracking human body poses using DeeperCut within TensorFlow By the end of this book you will have the expertise required to build your own Computer Vision projects using Python and its associated libraries What you will learnInstall and run major Computer Vision packages within PythonApply powerful support vector machines for simple digit classificationUnderstand deep learning with TensorFlowBuild a deep learning classifier for general imagesUse LSTMs for automated image captioningRead text from real world imagesExtract human pose data from imagesWho this book is for Python programmers and machine learning developers who wish to build exciting Computer Vision projects using the power of machine learning and OpenCV will find this book useful The only prerequisite for this book is that you should have a sound knowledge of Python programming   **OpenCV 3** Robert Laganière,2017 Making your applications see has never been easier with OpenCV With it you can teach your robot how to follow your cat write a program to correctly identify the members of One Direction or even help you find the right colors for your redecoration OpenCV 3 Computer Vision Application Programming Solutions provides a complete introduction to the OpenCV library and explains how to build your first computer vision program You will be presented with a variety of computer vision algorithms and exposed to important concepts in image and video analysis which will enable you to build your own computer vision applications This video helps you to get started with the OpenCV library and shows you how to install and deploy it to write effective computer vision applications following good programming practices You will learn how to read and write images and manipulate their pixels Different techniques for image enhancement and shape analysis will be presented You will learn

how to detect specific image features such as lines circles or corners You will be introduced to the concepts of mathematical morphology and image filtering Resource description page **Learning OpenCV 3** Adrian Kaehler,Gary Bradski,2016-12-14 Get started in the rapidly expanding field of computer vision with this practical guide Written by Adrian Kaehler and Gary Bradski creator of the open source OpenCV library this book provides a thorough introduction for developers academics roboticists and hobbyists You ll learn what it takes to build applications that enable computers to see and make decisions based on that data With over 500 functions that span many areas in vision OpenCV is used for commercial applications such as security medical imaging pattern and face recognition robotics and factory product inspection This book gives you a firm grounding in computer vision and OpenCV for building simple or sophisticated vision applications Hands on exercises in each chapter help you apply what you ve learned This volume covers the entire library in its modern C implementation including machine learning tools for computer vision Learn OpenCV data types array types and array operations Capture and store still and video images with HighGUI Transform images to stretch shrink warp remap and repair Explore pattern recognition including face detection Track objects and motion through the visual field Reconstruct 3D images from stereo vision Discover basic and advanced machine learning techniques in OpenCV *Machine Learning for OpenCV 4* Aditya Sharma,Vishwesh Ravi Shrimali,Michael Beyeler,2019-09-06 A practical guide to understanding the core machine learning and deep learning algorithms and implementing them to create intelligent image processing systems using OpenCV 4 Key FeaturesGain insights into machine learning algorithms and implement them using OpenCV 4 and scikit learnGet up to speed with Intel OpenVINO and its integration with OpenCV 4Implement high performance machine learning models with helpful tips and best practicesBook Description OpenCV is an opensource library for building computer vision apps The latest release OpenCV 4 offers a plethora of features and platform improvements that are covered comprehensively in this up to date second edition You ll start by understanding the new features and setting up OpenCV 4 to build your computer vision applications You will explore the fundamentals of machine learning and even learn to design different algorithms that can be used for image processing Gradually the book will take you through supervised and unsupervised machine learning You will gain hands on experience using scikit learn in Python for a variety of machine learning applications Later chapters will focus on different machine learning algorithms such as a decision tree support vector machines SVM and Bayesian learning and how they can be used for object detection computer vision operations You will then delve into deep learning and ensemble learning and discover their real world applications such as handwritten digit classification and gesture recognition Finally you ll get to grips with the latest Intel OpenVINO for building an image processing system By the end of this book you will have developed the skills you need to use machine learning for building intelligent computer vision applications with OpenCV 4 What you will learnUnderstand the core machine learning concepts for image processingExplore the theory behind machine learning and deep learning algorithm designDiscover effective

techniques to train your deep learning modelsEvaluate machine learning models to improve the performance of your modelsIntegrate algorithms such as support vector machines and Bayes classifier in your computer vision applicationsUse OpenVINO with OpenCV 4 to speed up model inferenceWho this book is for This book is for Computer Vision professionals machine learning developers or anyone who wants to learn machine learning algorithms and implement them using OpenCV 4 If you want to build real world Computer Vision and image processing applications powered by machine learning then this book is for you Working knowledge of Python programming is required to get the most out of this book   *OpenCV 4 for Secret Agents* Joseph Howse,2019-04-30 Turn futuristic ideas about computer vision and machine learning into demonstrations that are both functional and entertaining Key Features Build OpenCV 4 apps with Python 2 and 3 on desktops and Raspberry Pi Java on Android and C in Unity Detect classify recognize and measure real world objects in real time Work with images from diverse sources including the web research datasets and various cameras Book Description OpenCV 4 is a collection of image processing functions and computer vision algorithms It is open source supports many programming languages and platforms and is fast enough for many real time applications With this handy library you ll be able to build a variety of impressive gadgets OpenCV 4 for Secret Agents features a broad selection of projects based on computer vision machine learning and several application frameworks To enable you to build apps for diverse desktop systems and Raspberry Pi the book supports multiple Python versions from 2 7 to 3 7 For Android app development the book also supports Java in Android Studio and C in the Unity game engine Taking inspiration from the world of James Bond this book will add a touch of adventure and computer vision to your daily routine You ll be able to protect your home and car with intelligent camera systems that analyze obstacles people and even cats In addition to this you ll also learn how to train a search engine to praise or criticize the images that it finds and build a mobile app that speaks to you and responds to your body language By the end of this book you will be equipped with the knowledge you need to advance your skills as an app developer and a computer vision specialist What you will learn Detect motion and recognize gestures to control a smartphone game Detect car headlights and estimate their distance Detect and recognize human and cat faces to trigger an alarm Amplify motion in a real time video to show heartbeats and breaths Make a physics simulation that detects shapes in a real world drawing Build OpenCV 4 projects in Python 3 for desktops and Raspberry Pi Develop OpenCV 4 Android applications in Android Studio and Unity Who this book is for If you are an experienced software developer who is new to computer vision or machine learning and wants to study these topics through creative projects then this book is for you The book will also help existing OpenCV users who want upgrade their projects to OpenCV 4 and new versions of other libraries languages tools and operating systems General familiarity with object oriented programming application development and usage of operating systems OS developer tools and the command line is required   **Learning OpenCV 4 Computer Vision with Python** Joseph Howse,Joe Minichino,2020-02-20 Updated for OpenCV 4 and Python 3 this book covers the latest on depth cameras 3D

tracking augmented reality and deep neural networks helping you solve real world computer vision problems with practical code Key Features Build powerful computer vision applications in concise code with OpenCV 4 and Python 3 Learn the fundamental concepts of image processing object classification and 2D and 3D tracking Train use and understand machine learning models such as Support Vector Machines SVMs and neural networks Book Description Computer vision is a rapidly evolving science encompassing diverse applications and techniques This book will not only help those who are getting started with computer vision but also experts in the domain You ll be able to put theory into practice by building apps with OpenCV 4 and Python 3 You ll start by understanding OpenCV 4 and how to set it up with Python 3 on various platforms Next you ll learn how to perform basic operations such as reading writing manipulating and displaying still images videos and camera feeds From taking you through image processing video analysis and depth estimation and segmentation to helping you gain practice by building a GUI app this book ensures you ll have opportunities for hands on activities Next you ll tackle two popular challenges face detection and face recognition You ll also learn about object classification and machine learning concepts which will enable you to create and use object detectors and classifiers and even track objects in movies or video camera feed Later you ll develop your skills in 3D tracking and augmented reality Finally you ll cover ANNs and DNNs learning how to develop apps for recognizing handwritten digits and classifying a person s gender and age By the end of this book you ll have the skills you need to execute real world computer vision projects What you will learn Install and familiarize yourself with OpenCV 4 s Python 3 bindings Understand image processing and video analysis basics Use a depth camera to distinguish foreground and background regions Detect and identify objects and track their motion in videos Train and use your own models to match images and classify objects Detect and recognize faces and classify their gender and age Build an augmented reality application to track an image in 3D Work with machine learning models including SVMs artificial neural networks ANNs and deep neural networks DNNs Who this book is for If you are interested in learning computer vision machine learning and OpenCV in the context of practical real world applications then this book is for you This OpenCV book will also be useful for anyone getting started with computer vision as well as experts who want to stay up to date with OpenCV 4 and Python 3 Although no prior knowledge of image processing computer vision or machine learning is required familiarity with basic Python programming is a must

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Opencv 2 Computer Vision Application Programming Cookbook Laganiere Robert Introduction

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