OpenCV

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Jin-Ying Zhang

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   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   **Learning OpenCV** Gary Bradski,Adrian Kaehler,2008-09-24 This library is useful for practitioners and is an excellent tool for those entering the field it is a set of computer vision algorithms that work as advertised William T Freeman Computer Science and Artificial Intelligence Laboratory Massachusetts Institute of Technology Learning OpenCV puts you in the middle of the rapidly expanding field of computer vision Written by the creators of the free open source OpenCV library this book introduces you to computer vision and demonstrates how you can quickly build applications that enable computers to see and make decisions based on that data Computer vision is everywhere in security systems manufacturing inspection systems medical image analysis Unmanned Aerial Vehicles and more It stitches Google maps and Google Earth together checks the pixels on LCD screens and makes sure the stitches in your shirt are sewn properly OpenCV provides an easy to use computer vision framework and a comprehensive library with more than 500 functions that can run vision code in real time Learning OpenCV will teach any developer or hobbyist to use the framework quickly with the help of hands on exercises in each chapter This book includes A thorough introduction to OpenCV Getting input from cameras Transforming images Segmenting images and shape matching Pattern recognition including face detection Tracking and motion in 2 and 3 dimensions 3D reconstruction from stereo vision Machine learning algorithms Getting machines to see is a challenging but entertaining goal Whether you want to build simple or sophisticated vision applications Learning OpenCV is the book you need to get started   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   Mastering OpenCV 4 with Python Alberto Fernández Villán,2019-03-29 Create advanced applications with Python and OpenCV exploring the potential of facial recognition machine learning deep learning web computing and augmented reality Key FeaturesDevelop your computer vision skills by mastering algorithms in Open Source Computer Vision 4 OpenCV 4 and PythonApply machine learning and deep learning techniques with TensorFlow and KerasDiscover the modern design patterns you should avoid when developing efficient computer vision applicationsBook Description OpenCV is considered to be one of the best open source computer vision and machine learning software libraries It helps developers build complete projects in relation to image processing motion detection or image segmentation among many others OpenCV for Python enables you to run computer vision algorithms smoothly in real time combining the best of the OpenCV C API and the Python language In this book you ll get started by setting up OpenCV and delving into the key concepts of computer vision You ll then proceed to study more advanced concepts and discover the full potential of OpenCV The book will also introduce you to the creation of advanced applications using Python and OpenCV enabling you to develop applications that include facial recognition target tracking or augmented reality Next you ll learn machine learning techniques and concepts understand how to apply them in real world examples and also explore their benefits including real time data production and faster data processing You ll also discover how to translate the functionality provided by OpenCV into optimized application code projects using Python bindings Toward the

concluding chapters you ll explore the application of artificial intelligence and deep learning techniques using the popular Python libraries TensorFlow and Keras By the end of this book you ll be able to develop advanced computer vision applications to meet your customers demands What you will learnHandle files and images and explore various image processing techniquesExplore image transformations including translation resizing and croppingGain insights into building histogramsBrush up on contour detection filtering and drawingWork with Augmented Reality to build marker based and markerless applicationsWork with the main machine learning algorithms in OpenCVExplore the deep learning Python libraries and OpenCV deep learning capabilitiesCreate computer vision and deep learning web applicationsWho this book is for This book is designed for computer vision developers engineers and researchers who want to develop modern computer vision applications Basic experience of OpenCV and Python programming is a must   *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   **OpenCV Essentials** Oscar Deniz Suarez,Mª del Milagro Fernández Carrobles,Noelia Vállez Enano,Gloria Bueno García,Ismael Serrano Gracia,Julio Alberto Patón Incertis,Jesus Salido Tercero,2014-08-25 This book is intended for C developers who want to learn how to implement the main techniques of OpenCV and get started with it quickly Working experience with computer vision image processing is expected   OpenCV Computer Vision with Python Joseph Howse,2013 A practical project based tutorial for Python developers and hobbyists who want to get started with computer vision with OpenCV and Python OpenCV Computer Vision with Python is written for Python developers who are new to computer vision and want a practical guide to teach them the essentials Some understanding of image data for example pixels and color channels would be beneficial At a minimum you will need access to at least one webcam Certain exercises require additional hardware like a second webcam a Microsoft Kinect or an OpenNI compliant depth sensor such as the Asus Xtion PRO   *OpenCV 3.0 Computer Vision with Java* Daniel Lélis Baggio,2015-07-30 OpenCV 3 0 Computer Vision with Java is a practical tutorial guide that explains fundamental tasks from computer vision while focusing on Java development This book will teach you how to set up OpenCV for Java and handle matrices using the basic operations of image processing such as filtering and image transforms It will also help you learn how to use Haar cascades for tracking faces and to detect foreground and background regions with the help of a Kinect device It will even give you insights into server side OpenCV Each chapter is presented with several projects that are ready to use The functionality of these projects is found in many classes that allow developers to understand computer vision principles and rapidly extend or customize the projects for their needs   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 FeaturesBuild OpenCV 4 apps with Python 2 and 3 on desktops and Raspberry Pi Java on Android and C in UnityDetect classify recognize and measure real world objects in real timeWork with images from diverse sources including the web research datasets and various camerasBook 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 learnDetect motion and recognize gestures to control a smartphone gameDetect car headlights and estimate their distanceDetect and recognize human and cat faces to trigger an alarmAmplify motion in a real time video to show heartbeats and breathsMake a physics simulation that detects shapes in a real world drawingBuild OpenCV 4 projects in Python 3 for desktops and Raspberry PiDevelop OpenCV 4 Android applications in Android Studio and UnityWho 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   **Learn OpenCV 4.5 with Python 3.7 by Examples** James Chen, What This Book is About When you searched for this book you have already known the importance of the OpenCV Python in the fields of computer vision image processing and machine learning This book begins with step by step instructions of installation as well as a simple Hello World then gets into the OpenCV Basics Image Processing Object Detection and finally Machine Learning Key Features Example for every topic all the source codes are available in Github Line by line explanation of the source codes Focus mainly on implementation of algorithms rather than mathematical theories Whom This Book Is For This book is for people with a variety of computer programming levels from those with very limited knowledge of computer vision to the experienced ones The readers do not need to have previous experiences of Python OpenCV No matter you are a beginner or experienced programmer as long as you want to learn OpenCV with Python you will benefit from this book Table of Contents

Machine Learning for OpenCV Michael Beyeler,2017-07-14 Expand your OpenCV knowledge and master key concepts of machine learning using this practical hands on guide About This Book Load store edit and visualize data using OpenCV and Python Grasp the fundamental concepts of classification regression and clustering Understand perform and experiment with machine learning techniques using this easy to follow guide Evaluate compare and choose the right algorithm for any task Who This Book Is For This book targets Python programmers who are already familiar with OpenCV this book will give you the tools and understanding required to build your own machine learning systems tailored to practical real world tasks What You Will Learn Explore and make effective use of OpenCV s machine learning module Learn deep learning for computer vision with Python Master linear regression and regularization techniques Classify objects such as flower species handwritten digits and pedestrians Explore the effective use of support vector machines boosted decision trees and random forests Get acquainted with neural networks and Deep Learning to address real world problems Discover hidden structures in your data using k means clustering Get to grips with data pre processing and feature engineering In Detail Machine learning is no longer just a buzzword it is all around us from protecting your email to automatically tagging friends in pictures to predicting what movies you like Computer vision is one of today s most exciting application fields of machine learning with Deep Learning driving innovative systems such as self driving cars and Google s DeepMind OpenCV lies at the intersection of these topics providing a comprehensive open source library for classic as well as state of the art computer vision and machine learning algorithms In combination with Python Anaconda you will have access to all the open source computing libraries you could possibly ask for Machine learning for OpenCV begins by introducing you to the essential concepts of statistical learning such as classification and regression Once all the basics are covered you will start exploring various algorithms such as decision trees support vector machines and Bayesian networks and learn how to combine them with other OpenCV functionality As

the book progresses so will your machine learning skills until you are ready to take on today s hottest topic in the field Deep Learning By the end of this book you will be ready to take on your own machine learning problems either by building on the existing source code or developing your own algorithm from scratch Style and approach OpenCV machine learning connects the fundamental theoretical principles behind machine learning to their practical applications in a way that focuses on asking and answering the right questions This book walks you through the key elements of OpenCV and its powerful machine learning classes while demonstrating how to get to grips with a range of models *OpenCV Computer Vision Application Programming Cookbook Second Edition* 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 with Python by Example Prateek Joshi,2015-09-22 Build real world computer vision applications and develop cool demos using OpenCV for PythonAbout This Book Learn how to apply complex visual effects to images using geometric transformations and image filters Extract features from an image and use them to develop advanced applications Build algorithms to help you understand the image content and perform visual searchesWho This Book Is ForThis book is intended for Python developers who are new to OpenCV and want to develop computer vision applications with OpenCV Python This book is also useful for generic software developers who want to deploy computer vision applications on the cloud It would be helpful to have some familiarity with basic mathematical concepts such as vectors matrices and so on What You Will Learn Apply geometric transformations to images perform image filtering and convert an image into a cartoon like image Detect and track various body parts such as the face nose eyes ears and mouth Stitch multiple images of a scene together to create a panoramic image Make an object disappear from an image Identify different shapes segment an image and track an object in a live video Recognize an object in an image and build a visual search engine Reconstruct a 3D map from images Build an augmented reality applicationIn DetailComputer vision is found everywhere in modern technology OpenCV for Python enables us to run computer vision algorithms in real time With the advent of powerful machines we are getting more processing power to work with Using this technology we can seamlessly integrate our computer vision applications into the cloud Web developers can develop complex applications without having to reinvent the wheel This book will walk you through all the building blocks needed to build amazing computer vision applications with ease We start off with applying geometric transformations to images We then discuss affine and projective transformations and see how we can use them to apply cool geometric effects to photos We will then cover techniques used for object recognition 3D reconstruction stereo imaging and other computer vision applications This book will also provide clear examples written in Python to build OpenCV

applications The book starts off with simple beginner s level tasks such as basic processing and handling images image mapping and detecting images It also covers popular OpenCV libraries with the help of examples The book is a practical tutorial that covers various examples at different levels teaching you about the different functions of OpenCV and their actual implementation Style and approachThis is a conversational style book filled with hands on examples that are really easy to understand Each topic is explained very clearly and is followed by a programmatic implementation so that the concept is solidified Each topic contributes to something bigger in the following chapters which helps you understand how to piece things together to build something big and complex   *Mastering OpenCV 4* Roy Shilkrot,David Millán Escrivá,2018-12-27 Work on practical computer vision projects covering advanced object detector techniques and modern deep learning and machine learning algorithms Key FeaturesLearn about the new features that help unlock the full potential of OpenCV 4Build face detection applications with a cascade classifier using face landmarksCreate an optical character recognition OCR model using deep learning and convolutional neural networksBook Description Mastering OpenCV now in its third edition targets computer vision engineers taking their first steps toward mastering OpenCV Keeping the mathematical formulations to a solid but bare minimum the book delivers complete projects from ideation to running code targeting current hot topics in computer vision such as face recognition landmark detection and pose estimation and number recognition with deep convolutional networks You ll learn from experienced OpenCV experts how to implement computer vision products and projects both in academia and industry in a comfortable package You ll get acquainted with API functionality and gain insights into design choices in a complete computer vision project You ll also go beyond the basics of computer vision to implement solutions for complex image processing projects By the end of the book you will have created various working prototypes with the help of projects in the book and be well versed with the new features of OpenCV4 What you will learnBuild real world computer vision problems with working OpenCV code samplesUncover best practices in engineering and maintaining OpenCV projectsExplore algorithmic design approaches for complex computer vision tasksWork with OpenCV s most updated API v4 0 0 through projectsUnderstand 3D scene reconstruction and Structure from Motion SfM Study camera calibration and overlay AR using the ArUco ModuleWho this book is for This book is for those who have a basic knowledge of OpenCV and are competent C programmers You need to have an understanding of some of the more theoretical mathematical concepts as we move quite quickly throughout the book   *Learn Computer Vision Using OpenCV* Sunila Gollapudi,2019-04-26 Build practical applications of computer vision using the OpenCV library with Python This book discusses different facets of computer vision such as image and object detection tracking and motion analysis and their applications with examples The author starts with an introduction to computer vision followed by setting up OpenCV from scratch using Python The next section discusses specialized image processing and segmentation and how images are stored and processed by a computer This involves pattern recognition and image tagging using the OpenCV library Next you ll work

with object detection video storage and interpretation and human detection using OpenCV Tracking and motion is also discussed in detail The book also discusses creating complex deep learning models with CNN and RNN The author finally concludes with recent applications and trends in computer vision After reading this book you will be able to understand and implement computer vision and its applications with OpenCV using Python You will also be able to create deep learning models with CNN and RNN and understand how these cutting edge deep learning architectures work What You Will Learn Understand what computer vision is and its overall application in intelligent automation systems Discover the deep learning techniques required to build computer vision applications Build complex computer vision applications using the latest techniques in OpenCV Python and NumPy Create practical applications and implementations such as face detection and recognition handwriting recognition object detection and tracking and motion analysis Who This Book Is ForThose who have a basic understanding of machine learning and Python and are looking to learn computer vision and its applications

OpenCV 3 Blueprints Joseph Howse,Steven Puttemans,Quan Hua,Utkarsh Sinha,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   **iOS Application Development with OpenCV 3** Joseph Howse,2016-06-30 Create four mobile apps and explore the world through photography and computer vision About This Book Efficiently harness iOS and OpenCV to capture and process high quality images at high speed Develop photographic apps and augmented reality apps quickly and easily Detect recognize and morph faces and objects Who This Book Is For If you want to do computational photography and computer vision on Apple s mobile devices then this book is for you No previous experience with app development or OpenCV is required However basic knowledge of C or Objective C is recommended What You Will Learn Use Xcode and Interface Builder to develop iOS apps Obtain OpenCV s standard modules and build extra modules from source Control all the parameters of the iOS device s camera Capture save and share photos and videos Analyze colors shapes and textures in ordinary and specialized photographs Blend and compare images to create special photographic effects and augmented reality tools Detect faces and morph facial features Classify coins and other objects In Detail iOS Application Development with OpenCV 3 enables you to turn your smartphone camera into an advanced tool for photography and computer vision Using the highly optimized OpenCV library you will process high resolution images in real time You will locate and classify objects and create models of their geometry As you develop photo and augmented reality apps you will gain a general understanding of iOS frameworks and developer tools plus a deeper understanding of the camera and image APIs After completing the book s four projects you will be a well rounded iOS developer with valuable experience in OpenCV Style and approach The book is practical creative and precise It shows you the steps to create and customize five projects that solve important problems for beginners in mobile app development and computer vision Complete source code and numerous visual aids are included in each chapter Experimentation is an important part of the book You will use computer vision to explore the real world and then you will

refine the projects based on your findings   OpenCV By Example Prateek Joshi,David Millan Escriva,Vinicius Godoy,2016-01-22 Enhance your understanding of Computer Vision and image processing by developing real world projects in OpenCV 3 About This Book Get to grips with the basics of Computer Vision and image processing This is a step by step guide to developing several real world Computer Vision projects using OpenCV 3 This book takes a special focus on working with Tesseract OCR a free open source library to recognize text in images Who This Book Is For If you are a software developer with a basic understanding of Computer Vision and image processing and want to develop interesting Computer Vision applications with Open CV this is the book for you Knowledge of C is required What You Will Learn Install OpenCV 3 on your operating system Create the required CMake scripts to compile the C application and manage its dependencies Get to grips with the Computer Vision workflows and understand the basic image matrix format and filters Understand the segmentation and feature extraction techniques Remove backgrounds from a static scene to identify moving objects for video surveillance Track different objects in a live video using various techniques Use the new OpenCV functions for text detection and recognition with Tesseract In Detail Open CV is a cross platform free for use library that is primarily used for real time Computer Vision and image processing It is considered to be one of the best open source libraries that helps developers focus on constructing complete projects on image processing motion detection and image segmentation Whether you are completely new to the concept of Computer Vision or have a basic understanding of it this book will be your guide to understanding the basic OpenCV concepts and algorithms through amazing real world examples and projects Starting from the installation of OpenCV on your system and understanding the basics of image processing we swiftly move on to creating optical flow video analysis or text recognition in complex scenes and will take you through the commonly used Computer Vision techniques to build your own Open CV projects from scratch By the end of this book you will be familiar with the basics of Open CV such as matrix operations filters and histograms as well as more advanced concepts such as segmentation machine learning complex video analysis and text recognition Style and approach This book is a practical guide with lots of tips and is closely focused on developing Computer vision applications with OpenCV Beginning with the fundamentals the complexity increases with each chapter Sample applications are developed throughout the book that you can execute and use in your own projects   **Mastering OpenCV with Python** Ayush Vaishya,2023-11-15 Unlocking Visual Insights OpenCV Made Simple and Powerful KEY FEATURES OpenCV Mastery Harness the full potential of OpenCV Comprehensive Coverage From fundamentals to advanced techniques Practical Exercises Apply knowledge through hands on tasks DESCRIPTION Mastering OpenCV with Python immerses you in the captivating realm of computer vision with a structured approach that equips you with the knowledge and skills essential for success in this rapidly evolving field From grasping the fundamental concepts of image processing and OpenCV to mastering advanced techniques such as neural networks and object detection you will gain a comprehensive understanding Each chapter is enriched with hands on exercises and real world projects

ensuring the acquisition of practical skills that can be immediately applied in your professional journey This book not only elevates your technical proficiency but also prepares you for a rewarding career The technological job landscape is constantly evolving and professionals who can harness the potential of computer vision are in high demand By mastering the skills and insights contained within these pages you will be well prepared to explore exciting career opportunities ranging from machine learning engineering to computer vision research This book is your ticket to a future filled with innovation and professional advancement within the dynamic world of computer vision WHAT WILL YOU LEARN Master Image Processing and Machine Learning with OpenCV using advanced Tools and Libraries Create Real World Projects with Hands On Experience Explore Machine Learning for Computer Vision Develop Confidence in Practical Computer Vision Projects Conquer Real World Image Processing Challenges Apply Computer Vision Across Diverse Industries Boost Your Career in Computer Vision Become an Expert in Computer Vision for Career Advancement WHO IS THIS BOOK FOR This beginner friendly book in computer vision requires no prior experience making it accessible to newcomers While a basic programming understanding is helpful it s designed to guide individuals from diverse backgrounds into the captivating realms of AI computer vision and image processing It s equally valuable for aspiring tech professionals students and enthusiasts seeking rewarding careers and knowledge in these cutting edge fields TABLE OF CONTENTS 1 Introduction to Computer Vision 2 Getting Started with Images 3 Image Processing Fundamentals 4 Image Operations 5 Image Histograms 6 Image Segmentation 7 Edges and Contours 8 Machine Learning with Images 9 Advanced Computer Vision Algorithms 10 Neural Networks 11 Object Detection Using OpenCV 12 Projects Using OpenCV Index   *Learning Image Processing with OpenCV* Gloria Bueno Garcia,Deniz Oscar Suarez's,Oscar Deniz Suarez,Jose Luis Espinosa Aranda,Noelia Vállez Enano,Jesus Salido Tercero,Ismael Serrano Gracia,2015 If you are a competent C programmer and want to learn the tricks of image processing with OpenCV then this book is for you A basic understanding of image processing is required

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