
Learning Opencv 3 Computer Vision In C With The Opencv Library

Learning OpenCV 4 Computer Vision with Python
3

Unleash the Power of Computer Vision with
Python Using OpenCV

OpenCV 3 Computer Vision with Python Cookbook
Computer Vision with the OpenCV Library

Build visually appealing, multithreaded, cross-
platform computer vision applications

Learn Computer Vision Using OpenCV

Build real-world computer vision and image
processing applications with OpenCV and C++,
2nd Edition

Effective techniques for processing complex
image data in real time using GPUs

OpenCV 3 Blueprints

Computer Vision in C++ with the OpenCV Library

Practical Machine Learning and Image Processing
With Deep Learning CNNs and RNNs

Build complex computer vision applications with
OpenCV and C++, 4th Edition

Computer Vision

Computer Vision with the OpenCV Library

Learning OpenCV 3 Computer Vision with Python

Mastering OpenCV 3

Implement complex computer vision algorithms and explore deep learning and face detection

Hands-On GPU-Accelerated Computer Vision with OpenCV and CUDA

OpenCV 4 for Secret Agents

Image Classification, Object Detection, and Face Recognition in Python

Tools and algorithms for analyzing images

A practical guide covering topics from image processing, augmented reality to deep learning with OpenCV 4 and Python 3.7

Learning OpenCV

A comprehensive guide to building computer vision and image processing applications with C++, 3rd Edition

Use OpenCV 4 in secret projects to classify cats, reveal the unseen, and react to rogue drivers, 2nd Edition

Qt 5 and OpenCV 4 Computer Vision Projects

Learning OpenCV 3 Computer Vision with Python

Learning OpenCV 3

Six end-to-end projects built using machine learning with OpenCV, Python, and TensorFlow

Design and implement computer vision applications with Raspberry Pi, OpenCV, and Python 3, 2nd Edition

For Facial Recognition, Object Detection, and Pattern Recognition Using Python

Get to grips with tools, techniques, and algorithms for computer vision and machine

learning, 3rd Edition
OpenCV 3 Computer Vision Application
Programming Cookbook
Computer Vision in C++ with the OpenCV Library
Building Computer Vision Projects with OpenCV 4
and C++
OpenCV 3.x with Python By Example
Learn OpenCV 4 by Building Projects
Machine Learning for OpenCV
Deep Learning for Computer Vision

*Learning
OpenCV 3
Computer
Vision In
C With
The
OpenCV
Library*
*Downloaded
from
archive.imba.com
by guest*

**DAPHNE
AIDAN**

Learning
OpenCV 4
Computer
Vision with
Python 3
Packt
Publishing Ltd
"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. Unleash the Power of Computer Vision with Python Using OpenCV Packt Publishing Ltd Get savvy with OpenCV and actualize cool computer vision applications About This Book Use OpenCV's Python bindings to capture video, manipulate images, and track objects Learn about the different functions of OpenCV and their actual implementations. Develop a series of intermediate

to advanced projects using OpenCV and Python Who This Book Is For This learning path is for someone who has a working knowledge of Python and wants to try out OpenCV. This Learning Path will take you from a beginner to an expert in computer vision applications using OpenCV. OpenCV's application are humongous and this Learning Path is the best resource to get yourself

acquainted thoroughly with OpenCV. What You Will Learn Install OpenCV and related software such as Python, NumPy, SciPy, OpenNI, and SensorKinect - all on Windows, Mac or Ubuntu Apply "curves" and other color transformation s to simulate the look of old photos, movies, or video games Apply geometric transformation s to images, perform image filtering, and convert an image into a

cartoon-like image
 Recognize hand gestures in real time and perform hand-shape analysis based on the output of a Microsoft Kinect sensor
 Reconstruct a 3D real-world scene from 2D camera motion and common camera reprojection techniques
 Detect and recognize street signs using a cascade classifier and support vector machines (SVMs)
 Identify emotional expressions in

human faces using convolutional neural networks (CNNs) and SVMs
 Strengthen your OpenCV2 skills and learn how to use new OpenCV3 features
 In Detail OpenCV is a state-of-art computer vision library that allows a great variety of image and video processing operations.
 OpenCV for Python enables us to run computer vision algorithms in real time. This learning path

proposes to teach the following topics. First, we will learn how to get started with OpenCV and OpenCV3's Python API, and develop a computer vision application that tracks body parts. Then, we will build amazing intermediate-level computer vision applications such as making an object disappear from an image, identifying different shapes,

reconstructing a 3D map from images, and building an augmented reality application, Finally, we'll move to more advanced projects such as hand gesture recognition, tracking visually salient objects, as well as recognizing traffic signs and emotions on faces using support vector machines and multi-layer perceptrons respectively. This Learning Path combines some of the best that Packt has to

offer in one complete, curated package. It includes content from the following Packt products: OpenCV Computer Vision with Python by Joseph Howse OpenCV with Python By Example by Prateek Joshi OpenCV with Python Blueprints by Michael Beyeler Style and approach This course aims to create a smooth learning path that will teach you how to get started with will learn

how to get started with OpenCV and OpenCV 3's Python API, and develop superb computer vision applications. Through this comprehensive course, you'll learn to create computer vision applications from scratch to finish and more!. **OpenCV 3 Computer Vision with Python Cookbook** Packt Publishing Ltd 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 Features Gain insights into machine learning algorithms, and implement them using OpenCV 4 and scikit-learn Get up to speed with Intel OpenVINO and its integration with OpenCV 4 Implement high-performance

machine learning models with helpful tips and best practices Book 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	Understand the core machine learning concepts for image processing Explore the theory behind machine learning and deep learning algorithm design Discover effective techniques to train your deep learning models Evaluate machine learning models to improve the performance of your models Integrate algorithms such as support vector
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machines and Bayes classifier in your computer vision applications Use OpenVINO with OpenCV 4 to speed up model inference Who 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.
Computer Vision with the OpenCV Library
 Apress
 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, 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 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. [Build visually appealing, multithreaded, cross-platform computer vision applications](#) Packt Publishing Ltd Recipe-based approach to tackle the most common problems in Computer Vision by leveraging the functionality of OpenCV using Python APIs Key Features ● Build computer vision applications with OpenCV functionality

via Python API

- Get to grips with image processing, multiple view geometry, and machine learning
- Learn to use deep learning models for image classification, object detection, and face recognition

Book Description
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 by providing a number of recipes that you can use to improve your applications. In this book, you will learn how to process an image by manipulating pixels and

analyze an image using histograms. Then, we'll show you how to apply image filters to enhance image content and exploit the image geometry in order to relay different views of a pictured scene. We'll explore techniques to achieve camera calibration and perform a multiple-view analysis. Later, you'll work on reconstructing a 3D scene from images, converting low-level pixel information to

high-level concepts for applications such as object detection and recognition. You'll also discover how to process video from files or cameras and how to detect and track moving objects. Finally, you'll get acquainted with recent approaches in deep learning and neural networks. By the end of the book, you'll be able to apply your skills in OpenCV to create computer vision

applications in various domains. What you will learn ●Get familiar with low-level image processing methods ●See the common linear algebra tools needed in computer vision ●Work with different camera models and epipolar geometry ●Find out how to detect interesting points in images and compare them ●Binarize images and mask out regions of interest ●Detect

objects and track them in videos Who this book is for This book is for developers who have a basic knowledge of Python. If you are aware of the basics of OpenCV and are ready to build computer vision systems that are smarter, faster, more complex, and more practical than the competition, then this book is for you. [Learn Computer Vision Using OpenCV](#) Packt Publishing Ltd 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 For Those who have a basic understanding of machine learning and Python and are looking to learn computer vision and its applications. Build real-world computer

vision and image processing applications with OpenCV and C++, 2nd Edition Packt Publishing Ltd Gain a working knowledge of advanced machine learning and explore Python's powerful tools for extracting data from images and videos Key Features Implement image classification and object detection using machine learning and deep learning Perform image classification,

object detection, image segmentation, and other Computer Vision tasks. Crisp content with a practical approach to solving real-world problems in Computer Vision. Book 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 learn Install and run major Computer Vision packages within Python Apply powerful support vector machines for simple digit

classification Understand deep learning with TensorFlow Build a deep learning classifier for general images Use LSTMs for automated image captioning Read text from real-world images Extract human pose data from images Who 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. *Effective techniques for processing complex image data in real time using GPUs* Packt Pub Limited Learning OpenCV 3.0 puts you in the middle of the 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. It’s thoroughly updated to cover new features and changes in OpenCV 3.0. 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.
OpenCV 3 Blueprints
"O'Reilly Media, Inc." Build, create, and deploy your own computer vision applications with the power of OpenCV About This Book This book provides hands-on examples that cover the major features that are part of any important Computer Vision application It explores important algorithms that allow you to recognize

faces, identify objects, extract features from images, help your system make meaningful predictions from visual data, and much more All the code examples in the book are based on OpenCV 3.1 – the latest version Who This Book Is For This is the perfect book for anyone who wants to dive into the exciting world of image processing and computer vision. This book is aimed at

programmers with a working knowledge of C++. Prior knowledge of OpenCV or Computer Vision/Machine Learning is not required. What You Will Learn Explore the steps involved in building a typical computer vision/machine learning application Understand the relevance of OpenCV at every stage of building an application Harness the vast amount of information that lies hidden in images into

the apps you build Incorporate visual information in your apps to create more appealing software Get acquainted with how large-scale and popular image editing apps such as Instagram work behind the scenes by getting a glimpse of how the image filters in apps can be recreated using simple operations in OpenCV Appreciate how difficult it is for a computer program to

perform tasks that are trivial for human beings. Get to know how to develop applications that perform face detection, gender detection from facial images, and handwritten character (digit) recognition. In Detail Computer vision and machine learning concepts are frequently used in practical computer vision based projects. If you're a novice, this

book provides the steps to build and deploy an end-to-end application in the domain of computer vision using OpenCV/C++. At the outset, we explain how to install OpenCV and demonstrate how to run some simple programs. You will start with images (the building blocks of image processing applications), and see how they are stored and processed by OpenCV. You'll get comfortable

with OpenCV-specific jargon (Mat Point, Scalar, and more), and get to know how to traverse images and perform basic pixel-wise operations. Building upon this, we introduce slightly more advanced image processing concepts such as filtering, thresholding, and edge detection. In the latter parts, the book touches upon more complex and ubiquitous concepts such as face

detection (using Haar cascade classifiers), interest point detection algorithms, and feature descriptors. You will now begin to appreciate the true power of the library in how it reduces mathematically non-trivial algorithms to a single line of code! The concluding sections touch upon OpenCV's Machine Learning module. You will witness not only how OpenCV helps you pre-process and

extract features from images that are relevant to the problems you are trying to solve, but also how to use Machine Learning algorithms that work on these features to make intelligent predictions from visual data! Style and approach This book takes a very hands-on approach to developing an end-to-end application with OpenCV. To avoid being too theoretical, the description of

concepts are accompanied simultaneously by the development of applications. Throughout the course of the book, the projects and practical, real-life examples are explained and developed step by step in sync with the theory.

Computer Vision in C++ with the OpenCV

Library Packt Publishing Ltd Learn the techniques for object recognition, 3D reconstruction, stereo imaging, and

other computer vision applications using examples on different functions of OpenCV. Key Features Learn how to apply complex visual effects to images with OpenCV 3.x and Python Extract features from an image and use them to develop advanced applications Build algorithms to help you understand image content and perform visual searches Get to grips with

advanced techniques in OpenCV such as machine learning, artificial neural network, 3D reconstruction , and augmented reality Book Description Computer 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 have more processing power to work with. Using

this technology, we can seamlessly integrate our computer vision applications into the cloud. Focusing on OpenCV 3.x and Python 3.6, this book will walk you through all the building blocks needed to build amazing computer vision applications with ease. We start off by manipulating images using simple filtering and geometric transformations. We then discuss affine

and projective transformations and see how we can use them to apply cool advanced manipulations to your photos like resizing them while keeping the content intact or smoothly removing undesired elements. We will then cover techniques of object tracking, body part recognition, and object recognition using advanced techniques of machine learning such as artificial neural network. 3D

reconstruction and augmented reality techniques are also included. The book covers popular OpenCV libraries with the help of examples. This book is a practical tutorial that covers various examples at different levels, teaching you about the different functions of OpenCV and their actual implementation. By the end of this book, you will have acquired the skills to use

OpenCV and Python to develop real-world computer vision applications. What you will learn Detect shapes and edges from images and videos How to apply filters on images and videos Use different techniques to manipulate and improve images Extract and manipulate particular parts of images and videos Track objects or colors from videos Recognize specific object

<p>or faces from images and videos How to create Augmented Reality applications Apply artificial neural networks and machine learning to improve object recognition Who this book is for This book is intended for Python developers who are new to OpenCV and want to develop computer vision applications with OpenCV and Python. This book is also useful for</p>	<p>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. <i>Practical Machine Learning and Image Processing</i> Packt Publishing Ltd Create image processing, object detection and face recognition</p>	<p>apps by leveraging the power of machine learning and deep learning with OpenCV 4 and Qt 5 Key Features Gain practical insights into code for all projects covered in this book Understand modern computer vision concepts such as character recognition, image processing and modification Learn to use a graphics processing unit (GPU) and its parallel processing</p>
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power for filtering images quickly. Book Description OpenCV and Qt have proven to be a winning combination for developing cross-platform computer vision applications. By leveraging their power, you can create robust applications with both an intuitive graphical user interface (GUI) and high-performance capabilities. This book will help you learn through a variety of real-world projects

on image processing, face and text recognition, object detection, and high-performance computing. You'll be able to progressively build on your skills by working on projects of increasing complexity. You'll begin by creating an image viewer application, building a user interface from scratch by adding menus, performing actions based on key-presses, and applying other functions. As

you progress, the book will guide you through using OpenCV image processing and modification functions to edit an image with filters and transformation features. In addition to this, you'll explore the complex motion analysis and facial landmark detection algorithms, which you can use to build security and face detection applications. Finally, you'll learn to use

pretrained deep learning models in OpenCV and GPUs to filter images quickly. By the end of this book, you will have learned how to effectively develop full-fledged computer vision applications with OpenCV and Qt. What you will learn

Create an image viewer with all the basic requirements

Construct an image editor to filter or transform images

Develop a security app to detect movement and secure homes

Build an app to detect facial landmarks and apply masks to faces

Create an app to extract text from scanned documents and photos

Train and use cascade classifiers and DL models for object detection

Build an app to measure the distance between detected objects

Implement high-speed image filters on GPU with Open Graphics Library (OpenGL)

Who this book is for

This book is for engineers and developers who are familiar with both Qt and OpenCV frameworks and are capable of creating simple projects using them, but want to build their skills to create professional-level projects using them.

Familiarity with the C++ language is a must to follow the example source codes in this book.

With Deep

Learning CNNs and RNNs
Packt
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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.

**Build
complex
computer
vision
applications
with OpenCV
and C++,
4th Edition**

Packt
Publishing Ltd
Create
advanced
applications
with Python
and OpenCV,
exploring the
potential of
facial
recognition,
machine
learning, deep
learning, web
computing
and

augmented reality. Key Features Develop your computer vision skills by mastering algorithms in Open Source Computer Vision 4 (OpenCV 4) and Python Apply machine learning and deep learning techniques with TensorFlow and Keras Discover the modern design patterns you should avoid when developing efficient computer vision applications Book	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
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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 learn Handle files and images, and explore various image processing techniques Explore image transformations, including translation, resizing, and cropping Gain insights into building histograms Brush up on contour detection, filtering, and drawing Work with Augmented Reality to build marker-based and

markerless applications
Work with the main machine learning algorithms in OpenCV
Explore the deep learning Python libraries and OpenCV deep learning capabilities
Create computer vision and deep learning web applications
Who 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.
Computer Vision Machine Learning Mastery
Each chapter in the book is an individual project and each project is constructed with step-by-step instructions, clearly explained code, and includes the necessary screenshots.
You should have basic

OpenCV and C/C++ programming experience before reading this book, as it is aimed at Computer Science graduates, researchers, and computer vision experts widening their expertise.
Computer Vision with the OpenCV Library
Packt Publishing Ltd
Explains the theory behind basic computer vision and provides a bridge from the theory to practical implementation using the industry

standard OpenCV libraries Computer Vision is a rapidly expanding area and it is becoming progressively easier for developers to make use of this field due to the ready availability of high quality libraries (such as OpenCV2). This text is intended to facilitate the practical use of computer vision with the goal being to bridge the gap between the theory and the practical implementation of computer vision. The book will explain how to use the relevant OpenCV library routines and will be accompanied by a full working program including the code snippets from the text. This textbook is a heavily illustrated, practical introduction to an exciting field, the applications of which are becoming almost ubiquitous. We are now surrounded by cameras, for example cameras on computers & tablets/ cameras built into our mobile phones/ cameras in games consoles; cameras imaging difficult modalities (such as ultrasound, X-ray, MRI) in hospitals, and surveillance cameras. This book is concerned with helping the next generation of computer developers to make use of all these images in order to

<p>develop systems which are more intuitive and interact with us in more intelligent ways. Explains the theory behind basic computer vision and provides a bridge from the theory to practical implementation using the industry standard OpenCV libraries. Offers an introduction to computer vision, with enough theory to make clear how the various algorithms work but with</p>	<p>an emphasis on practical programming issues. Provides enough material for a one semester course in computer vision at senior undergraduate and Masters levels. Includes the basics of cameras and images and image processing to remove noise, before moving on to topics such as image histogramming; binary imaging; video processing to detect and model moving objects; geometric</p>	<p>operations & camera models; edgedetection ; features detection; recognition in images. Contains a large number of vision application problems to provide students with the opportunity to solve real problems. Images or videos for these problems are provided in the resources associated with this book which include an enhanced eBook <i>Learning OpenCV 3</i></p>
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<i>Computer Vision with Python</i>	machine learning concepts	familiarize themselves with the
"O'Reilly Media, Inc."	Harness the power of	concepts of object
Learning	computer vision with	classification and detection
OpenCV	this easy-to-follow guide	in simple and understandable
3Computer Vision in C++ with the	Who This Book Is For	e terms. Basic knowledge
OpenCV Library	Intended for novices to the	about Python and
O'Reilly Media	world of OpenCV and	programming concepts is
Mastering OpenCV 3	computer vision, as well	required, although the
Packt Publishing Ltd	as OpenCV veterans that	book has an easy learning
Unleash the power of	want to learn about what's	curve both from a
computer vision with	new in OpenCV 3,	theoretical and coding
Python using OpenCV	this book is useful as a	point of view. What You Will
About This Book	reference for experts and a	Learn Install and familiarize
Create impressive	training manual for	yourself with OpenCV 3's
applications with OpenCV	beginners, or for anybody	Python API
and Python	who wants to	Grasp the basics of
Familiarize yourself with		
advanced		

image processing and video analysis Identify and recognize objects in images and videos Detect and recognize faces using OpenCV Train and use your own object classifiers Learn about machine learning concepts in a computer vision context Work with artificial neural networks using OpenCV Develop your own computer vision real-life application In Detail OpenCV 3 is a state-of-

the-art computer vision library that allows a great variety of image and video processing operations. Some of the more spectacular and futuristic features such as face recognition or object tracking are easily achievable with OpenCV 3. Learning the basic concepts behind computer vision algorithms, models, and OpenCV's API will enable the development

of all sorts of real-world applications, including security and surveillance. Starting with basic image processing operations, the book will take you through to advanced computer vision concepts. Computer vision is a rapidly evolving science whose applications in the real world are exploding, so this book will appeal to computer vision novices as well as experts of the subject

wanting to learn the brand new OpenCV 3.0.0. You will build a theoretical foundation of image processing and video analysis, and progress to the concepts of classification through machine learning, acquiring the technical know-how that will allow you to create and use object detectors and classifiers, and even track objects in movies or video camera feeds. Finally, the journey

will end in the world of artificial neural networks, along with the development of a hand-written digits recognition application. Style and approach This book is a comprehensive guide to the brand new OpenCV 3 with Python to develop real-life computer vision applications. Implement complex computer vision algorithms and explore deep learning and face detection

O'Reilly Media Gain insights into image-processing methodologies and algorithms, using machine learning and neural networks in Python. This book begins with the environment setup, understanding basic image-processing terminology, and exploring Python concepts that will be useful for implementing the algorithms discussed in the book. You will then cover all the core image

processing algorithms in detail before moving onto the biggest computer vision library: OpenCV. You'll see the OpenCV algorithms and how to use them for image processing. The next section looks at advanced machine learning and deep learning methods for image processing and classification. You'll work with concepts such as pulse coupled neural networks,

AdaBoost, XG boost, and convolutional neural networks for image-specific applications. Later you'll explore how models are made in real time and then deployed using various DevOps tools. All the concepts in Practical Machine Learning and Image Processing are explained using real-life scenarios. After reading this book you will be able to apply image processing techniques and make

machine learning models for customized application. What You Will Learn Discover image-processing algorithms and their applications using Python Explore image processing using the OpenCV library Use TensorFlow, scikit-learn, NumPy, and other libraries Work with machine learning and deep learning algorithms for image processing Apply image-processing

techniques to five real-time projects Who This Book Is For Data scientists and software developers interested in image processing and computer vision.

Hands-On GPU-Accelerated Computer Vision with OpenCV and CUDA Packt Publishing Ltd
 Practical OpenCV is a hands-on project book that shows you how to get the best results from OpenCV, the open-source computer

vision library. Computer vision is key to technologies like object recognition, shape detection, and depth estimation. OpenCV is an open-source library with over 2500 algorithms that you can use to do all of these, as well as track moving objects, extract 3D models, and overlay augmented reality. It's used by major companies like Google (in its autonomous

car), Intel, and Sony; and it is the backbone of the Robot Operating System's computer vision capability. In short, if you're working with computer vision at all, you need to know OpenCV. With Practical OpenCV, you'll be able to: Get OpenCV up and running on Windows or Linux. Use OpenCV to control the camera board and run vision algorithms on Raspberry Pi. Understand what goes on behind the

scenes in computer vision applications like object detection, image stitching, filtering, stereo vision, and more. Code complex computer vision projects for your class/hobby/robot/job, many of which can execute in real time on off-the-shelf processors. Combine different modules that you develop to create your own interactive computer vision app. *OpenCV 4 for*

Secret Agents O'Reilly Media 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, with basic programming
familiarity Python is a must.

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