
Programming Computer Vision With Python Techniques And Libraries For Imaging And Retrieving Information Author Jan Erik Solem Jul 2012

Deep Learning for Computer Vision with Python and TensorFlow - Complete Course Create a Large Language Model from Scratch with Python - Tutorial Image Processing with OpenCV and Python Advanced Computer Vision with Python - Full Course Python OpenCV for Beginners - Full Course - Learn Computer Vision Virtual Calculator using OpenCV Python | Computer Vision OpenCV

Course - Full Tutorial with Python Build a Personal AI Trainer | OpenCV Python | Computer Vision Computer vision game using python Don't Buy Security Camera! Build Your Own || Computer Vision || Open cv tutorial || python project Computer Vision Project | Analog Clock using OPENCV-PYTHON | Mathematical Project | Full Explained Computer Vision Project | Air Canvas | Project with code and best for resume | Python OpenCV Project Computer Vision With Arduino | 2 Hour Course | OpenCV Python How to controll LED Using Python \u0026 Arduino | OpenCV Python || Arduino Projects AI ROBOT ARM using Python Arduino OpenCV CVZone | Computer Vision Is this still the best book on Machine Learning? TOP 5 BOOKS TO LEARN OPENCV | Learn COMPUTER VISION | BEST COMPUTER VISION BOOKS FREE DOWNLOAD OpenCV Course - Full Tutorial with Python When and how to start coding with kids - Talk Python Live Stream How to Get Started with Computer Vision - Beginner to Advanced Roadmap Using Python for Computer Vision Don't Buy Security Camera! Build Your Own || Computer Vision || Open cv tutorial || python project ChatGPT recommends 5 PYTHON books OpenCV Python Course - Learn Computer Vision and AI Natural Language Processing with spaCy \u0026 Python - Course for Beginners Python for Everybody - Full University Python Course Automate the Boring Stuff with Python: Review | Learn Python with this complete python course Automating my life with Python: Using

Computer Vision to Detect Bad Posture How I'd
learn ML in 2024 (if I could start over) Automating
My Life With Python: Using Computer Vision to
Make Me Invisible PyTorch in 100 Seconds Best
Python Programming Book #LearnPython
#ProgrammingBook #shorts Learn Anything
quickly with these two books (life changing)
Build creative computer vision projects with the
latest version of OpenCV 4 and Python 3, 2nd
Edition
Lessons Learned from Programming Over Time
Learning OpenCV 4 Computer Vision with Python
3
A practical guide covering topics from image
processing, augmented reality to deep learning
with OpenCV 4 and Python 3.7
Algorithms for Image Processing and Computer
Vision
Modern Computer Vision with PyTorch
Practical Computer Vision with SimpleCV
Learning OpenCV 3
Powerful Object-Oriented Programming
Hands-On Image Processing with Python
Deep Learning for Computer Vision
Python Image Processing Cookbook
Stuff You Should Know
Programming Computer Vision with Python
Computer Vision Projects with OpenCV and
Python 3
Computer Vision
OpenCV 4 Computer Vision Application
Programming Cookbook

Effective techniques for processing complex image data in real time using GPUs
Learning To Program By Python Language With Guides: Python Programming
OpenCV Computer Vision with Python
Deep Learning for Computer Vision
Artificial Intelligence with Python
Algorithms and Applications
Explore deep learning concepts and implement over 50 real-world image applications
PyTorch Computer Vision Cookbook
Creating and Deploying Deep Learning Applications
Over 60 Recipes to Help You Perform Complex Image Processing and Computer Vision Tasks with Ease

*Programming
Computer
Vision With
Python
Techniques
And Libraries
For Imaging
And
Retrieving
Information*
Author Jan Erik Solem
Jul 2012

OMB No.
1694887396041
edited by

**ALEXZANDE
R LEVY**

**Build
creative
computer
vision
projects with
the latest
version of**

**OpenCV 4
and Python
3, 2nd
Edition** Packt
Publishing Ltd

This book is intended for novices, as well as seasoned Raspberry Pi and Python enthusiasts, who would like to explore the

area of computer vision. Readers with very little programming or coding/scripting experience can create wonderful image processing and computer vision

applications with relatively fewer lines of code in Python.

Lessons

Learned from Programming Over Time

Independently Published

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.

*Learning
OpenCV 4
Computer
Vision with
Python 3*
Packt
Publishing Ltd
A cookbook of

algorithms for
common
image
processing
applications
Thanks to
advances in
computer
hardware and
software,
algorithms
have been
developed
that support
sophisticated
image
processing
without
requiring an
extensive
background in
mathematics.
This
bestselling
book has been
fully updated
with the
newest of
these,
including 2D
vision
methods in

content-based
searches and
the use of
graphics cards
as image
processing
computational
aids. It's an
ideal
reference for
software
engineers and
developers,
advanced
programmers,
graphics
programmers,
scientists, and
other
specialists
who require
highly
specialized
image
processing.
Algorithms
now exist for a
wide variety of
sophisticated
image
processing
applications

required by software engineers and developers, advanced programmers, graphics programmers, scientists, and related specialists

This bestselling book has been completely updated to include the latest algorithms, including 2D vision methods in content-based searches, details on modern classifier methods, and graphics cards used as image processing computational

aids Saves hours of mathematical calculating by using distributed processing and GPU programming, and gives non-mathematicians the

shortcuts needed to program relatively sophisticated applications. Algorithms for Image Processing and Computer Vision, 2nd Edition provides the tools to speed development of image processing applications.

A practical guide

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

Packt Publishing Ltd
If you want a basic understanding of computer vision's underlying theory and algorithms, this hands-on introduction is the ideal place to start. You'll learn techniques for object recognition, 3D reconstruction, stereo

imaging, augmented reality, and other computer vision applications as you follow clear examples written in Python. Programming Computer Vision with Python explains computer vision in broad terms that won't bog you down in theory. You get complete code samples with explanations on how to reproduce and build upon each example, along with

exercises to help you apply what you've learned. This book is ideal for students, researchers, and enthusiasts with basic programming and standard mathematical skills. Learn techniques used in robot navigation, medical image analysis, and other computer vision applications. Work with image mappings and transforms, such as texture warping and panorama creation

Compute 3D reconstruction s from several images of the same scene Organize images based on similarity or content, using clustering methods Build efficient image retrieval techniques to search for images based on visual content Use algorithms to classify image content and recognize objects Access the popular OpenCV library through a Python interface Algorithms for

Image Processing and Computer Vision Packt Pub Limited Advancements in wireless devices and mobile technology have enabled the acquisition of a tremendous amount of graphics, pictures, and videos. Through cutting edge recipes, this book provides coverage on tools, algorithms, and analysis for image processing. This book provides solutions addressing

the challenges and complex tasks of image processing.

MODERN COMPUTER VISION WITH PYTORCH

John Wiley & Sons
Learn how to build your own computer vision (CV) applications quickly and easily with SimpleCV, an open source framework written in Python. Through examples of real-world applications, this hands-on guide introduces you to basic CV techniques for

collecting, processing, and analyzing streaming digital images. You'll then learn how to apply these methods with SimpleCV, using sample Python code. All you need to get started is a Windows, Mac, or Linux system, and a willingness to put CV to work in a variety of ways. Programming experience is optional. Capture images from several sources, including webcams, smartphones, and Kinect

Filter image input so your application processes only necessary information Manipulate images by performing basic arithmetic on pixel values Use feature detection techniques to focus on interesting parts of an image Work with several features in a single image, using the NumPy and SciPy Python libraries Learn about optical flow to identify objects that change between two

image frames Use SimpleCV's command line and code editor to run examples and test techniques

PRACTICAL COMPUTER VISION WITH SIMPLECV

"O'Reilly Media, Inc." Today, software engineers need to know not only how to program effectively but also how to develop proper engineering practices to make their codebase sustainable and healthy.

This book emphasizes this difference between programming and software engineering. How can software engineers manage a living codebase that evolves and responds to changing requirements and demands over the length of its life? Based on their experience at Google, software engineers Titus Winters and Hyrum Wright, along with technical writer Tom Manshreck,

present a candid and insightful look at how some of the world's leading practitioners construct and maintain software. This book covers Google's unique engineering culture, processes, and tools and how these aspects contribute to the effectiveness of an engineering organization. You'll explore three fundamental principles that software organizations should keep in

mind when designing, architecting, writing, and maintaining code: How time affects the sustainability of software and how to make your code resilient over time How scale affects the viability of software practices within an engineering organization What trade-offs a typical engineer needs to make when evaluating design and development decisions *Learning OpenCV 3*

Packt Publishing Ltd 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.

POWERFUL OBJECT- ORIENTED PROGRAMMI NG

Independently Published Discover powerful ways to use deep learning algorithms and solve real-world computer vision problems using Python Key Features Solve the trickiest of problems in computer vision by combining the

power of deep learning and neural networks Leverage PyTorch 1.x capabilities to perform image classification, object detection, and more Train and deploy enterprise-grade, deep learning models for computer vision applications Book Description Computer vision techniques play an integral role in helping developers gain a high-level understanding

of digital images and videos. With this book, you'll learn how to solve the trickiest problems in computer vision (CV) using the power of deep learning algorithms, and leverage the latest features of PyTorch 1.x to perform a variety of CV tasks. Starting with a quick overview of the PyTorch library and key deep learning concepts, the book then covers common and not-so-

common challenges faced while performing image recognition, image segmentation, object detection, image generation, and other tasks. Next, you'll understand how to implement these tasks using various deep learning architectures such as convolutional neural networks (CNNs), recurrent neural networks (RNNs), long short-term

memory (LSTM), and generative adversarial networks (GANs). Using a problem-solution approach, you'll learn how to solve any issue you might face while fine-tuning the performance of a model or integrating it into your application. Later, you'll get to grips with scaling your model to handle larger workloads, and implementing best practices for training models efficiently. By

the end of this CV book, you'll be proficient in confidently solving many CV related problems using deep learning and PyTorch. What you will learn Develop, train and deploy deep learning algorithms using PyTorch 1.x Understand how to fine-tune and change hyperparameters to train deep learning algorithms Perform various CV tasks such as classification, detection, and segmentation Implement a

neural style transfer network based on CNNs and pre-trained models Generate new images and implement adversarial attacks using GANs Implement video classification models based on RNN, LSTM, and 3D-CNN Discover best practices for training and deploying deep learning algorithms for CV applications Who this book is for Computer vision professionals, data

scientists, deep learning engineers, and AI developers looking for quick solutions for various computer vision problems will find this book useful. Intermediate-level knowledge of computer vision concepts, along with Python programming experience is required. Hands-On Image Processing with Python Packt Publishing Ltd "This book

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

DEEP LEARNING FOR COMPUTER VISION

"O'Reilly Media, Inc." Step-by-step tutorials on deep learning neural networks for

computer vision in python with Keras.

PYTHON IMAGE PROCESSING COOKBOOK

Machine Learning Mastery 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. **Stuff You Should Know** O'Reilly Media Deep learning is changing everything. This machine-learning method has already surpassed traditional computer vision

techniques, and the same is happening with NLP. If you're looking to bring deep learning into your domain, this practical book will bring you up to speed on key concepts using Facebook's PyTorch framework. Once author Ian Pointer helps you set up PyTorch on a cloud-based environment, you'll learn how use the framework to create neural architectures for performing operations on images, sound, text,

and other types of data. By the end of the book, you'll be able to create neural networks and train them on multiple types of data. Learn how to deploy deep learning models to production. Explore PyTorch use cases in companies other than Facebook. Learn how to apply transfer learning to images. Apply cutting-edge NLP techniques using a model trained on Wikipedia.

Programmin

g Computer Vision with Python
"O'Reilly Media, Inc."
Get a comprehensive, in-depth introduction to the core Python language with this hands-on book. Based on author Mark Lutz's popular training course, this updated fifth edition will help you quickly write efficient, high-quality code with Python. It's an ideal way to begin, whether you're new to programming or a

professional developer versed in other languages. Complete with quizzes, exercises, and helpful illustrations, this easy-to-follow, self-paced tutorial gets you started with both Python 2.7 and 3.3—the latest releases in the 3.X and 2.X lines—plus all other releases in common use today. You'll also learn some advanced language features that recently have become more common in

Python code. Explore Python's major built-in object types such as numbers, lists, and dictionaries. Create and process objects with Python statements, and learn Python's general syntax model. Use functions to avoid code redundancy and package code for reuse. Organize statements, functions, and other tools into larger components with modules. Dive into classes:

Python's object-oriented programming tool for structuring code. Write large programs with Python's exception-handling model and development tools. Learn advanced Python tools, including decorators, descriptors, metaclasses, and Unicode processing.

COMPUTER VISION PROJECTS WITH OPENCV AND

PYTHON 3

Packt Publishing Ltd. Python is an interpreted, high-level and general-purpose programming language. Python's design philosophy emphasizes code readability with its notable use of significant whitespace. Python is popular and loved because of its ease to use and quickness in programming without consuming so much time. It can be used

for various purposes and computer vision seems to be the best part. The Computer Vision field is one of the most interesting and exciting subjects of computer science. This field focuses on how computers perceive and process image and video data. The technologies of this field are essential for our future. Using python in programming computer vision is a great idea as

it can help us recognize faces and other objects in real-time. We can apply filters, transformations, and lots of effects. If you want to be a part of this movement instead of being overrun by it, you should learn these skills as fast as possible! And this book is perfectly suitable for you in this field. After Reading This Book You Will Have The Following Skills: Understanding computer

vision and visual computing
Understanding color schemes (RGB, BGR, HSV) Making unreadable texts readable again with thresholding
Extracting essential information out of images and videos
Edge detection
Template matching and feature matching
Movement detection in videos
Professional object recognition with OpenCV
Master Computer Vision with

Python and
OpenCV!

COMPUTER VISION

Packt
Publishing Ltd
Perform a
wide variety of
computer
vision tasks
such as image
processing
and
manipulation,
feature and
object
detection, and
image
restoration to
build real-life
computer
vision
applications
Key Features
Explore the
potential of
computer
vision with
Raspberry Pi
and Python
programming

Perform
computer
vision tasks
such as image
processing
and
manipulation
using OpenCV
and Raspberry
Pi Discover
easy-to-follow
examples and
screenshots to
implement
popular
computer
vision
techniques
and
applications
Book
Description
Raspberry Pi is
one of the
popular
single-board
computers of
our
generation. All
the major
image
processing

and computer
vision
algorithms
and
operations can
be
implemented
easily with
OpenCV on
Raspberry Pi.
This updated
second edition
is packed with
cutting-edge
examples and
new topics,
and covers
the latest
versions of
key
technologies
such as
Python 3,
Raspberry Pi,
and OpenCV.
This book will
equip you with
the skills
required to
successfully
design and
implement

your own OpenCV, Raspberry Pi, and Python-based computer vision projects. At the start, you'll learn the basics of Python 3, and the fundamentals of single-board computers and NumPy. Next, you'll discover how to install OpenCV 4 for Python 3 on Raspberry Pi, before covering major techniques and algorithms in image processing,

manipulation, and computer vision. By working through the steps in each chapter, you'll understand essential OpenCV features. Later sections will take you through creating graphical user interface (GUI) apps with GPIO and OpenCV. You'll also learn to use the new computer vision library, Mahotas, to perform various image processing operations. Finally, you'll explore the Jupyter

Notebook and how to set up a Windows computer and Ubuntu for computer vision. By the end of this book, you'll be able to confidently build and deploy computer vision apps. What you will learn Set up a Raspberry Pi for computer vision applications Perform basic image processing with libraries such as NumPy, Matplotlib, and OpenCV Demonstrate arithmetical, logical, and

<p>other operations on images Work with a USB webcam and the Raspberry Pi Camera Module Implement low-pass and high-pass filters and understand their applications in image processing Cover advanced techniques such as histogram equalization and morphological transformation s Create GUI apps with Python 3 and OpenCV Perform machine</p>	<p>learning with K-means clustering and image quantization Who this book is for This book is for beginners as well as experienced Raspberry Pi and Python 3 enthusiasts who are looking to explore the amazing world of computer vision. Working knowledge of the Python 3 programming language is assumed. OpenCV 4 Computer Vision Application Programmin g Cookbook</p>	<p>"O'Reilly Media, Inc." Get to grips with traditional computer vision algorithms and deep learning approaches, and build real- world applications with OpenCV and other machine learning frameworks Key Features Understand how to capture high- quality image data, detect and track objects, and process the actions of animals or humans Implement</p>
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your learning in different areas of computer vision. Explore advanced concepts in OpenCV such as machine learning, artificial neural network, and augmented reality. **Book Description** OpenCV is a native cross-platform C++ library for computer vision, machine learning, and image processing. It is increasingly being adopted in Python for development. This book will get you

hands-on with a wide range of intermediate to advanced projects using the latest version of the framework and language, OpenCV 4 and Python 3.8, instead of only covering the core concepts of OpenCV in theoretical lessons. This updated second edition will guide you through working on independent hands-on projects that focus on essential OpenCV concepts such as image processing,

object detection, image manipulation, object tracking, and 3D scene reconstruction, in addition to statistical learning and neural networks. You'll begin with concepts such as image filters, Kinect depth sensor, and feature matching. As you advance, you'll not only get hands-on with reconstructing and visualizing a scene in 3D but also learn to track visually salient objects. The

book will help you further build on your skills by demonstrating how to recognize traffic signs and emotions on faces. Later, you'll understand how to align images, and detect and track objects using neural networks. By the end of this OpenCV Python book, you'll have gained hands-on experience and become proficient at developing advanced computer vision apps according to specific

business needs. What you will learn Generate real-time visual effects using filters and image manipulation techniques such as dodging and burning Recognize hand gestures in real-time and perform hand-shape analysis based on the output of a Microsoft Kinect sensor Learn feature extraction and feature matching to track arbitrary objects of interest Reconstruct a 3D real-world scene using

2D camera motion and camera reprojection techniques Detect faces using a cascade classifier and identify emotions in human faces using multilayer perceptrons Classify, localize, and detect objects with deep neural networks Who this book is for This book is for intermediate-level OpenCV users who are looking to enhance their skills by developing advanced

applications. Familiarity with OpenCV concepts and Python libraries, and basic knowledge of the Python programming language are assumed. *Effective techniques for processing complex image data in real time using GPUs* Packt Publishing Ltd Build real-world Artificial Intelligence applications with Python to intelligently interact with the world around you About This Book Step into

the amazing world of intelligent apps using this comprehensive guide Enter the world of Artificial Intelligence, explore it, and create your own applications Work through simple yet insightful examples that will get you up and running with Artificial Intelligence in no time Who This Book Is For This book is for Python developers who want to build real-world Artificial Intelligence applications.

This book is friendly to Python beginners, but being familiar with Python would be useful to play around with the code. It will also be useful for experienced Python programmers who are looking to use Artificial Intelligence techniques in their existing technology stacks. What You Will Learn Realize different classification and regression techniques Understand the concept of

clustering and how to use it to automatically segment data See how to build an intelligent recommender system Understand logic programming and how to use it Build automatic speech recognition systems Understand the basics of heuristic search and genetic programming Develop games using Artificial Intelligence Learn how reinforcement learning works	Discover how to build intelligent applications centered on images, text, and time series data See how to use deep learning algorithms and build applications based on it In Detail Artificial Intelligence is becoming increasingly relevant in the modern world where everything is driven by technology and data. It is used extensively across many fields such as search engines,	image recognition, robotics, finance, and so on. We will explore various real- world scenarios in this book and you'll learn about various algorithms that can be used to build Artificial Intelligence applications. During the course of this book, you will find out how to make informed decisions about what algorithms to use in a given context. Starting from the basics of Artificial
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Intelligence, you will learn how to develop various building blocks using different data mining techniques. You will see how to implement different algorithms to get the best possible results, and will understand how to apply them to real-world scenarios. If you want to add an intelligence layer to any application that's based on images, text, stock

market, or some other form of data, this exciting book on Artificial Intelligence will definitely be your guide! Style and approach This highly practical book will show you how to implement Artificial Intelligence. The book provides multiple examples enabling you to create smart applications to meet the needs of your organization. In every chapter, we explain an

algorithm, implement it, and then build a smart application.
Learning To Program By Python Language With Guides: Python Programming "O'Reilly Media, Inc."
If you want a basic understanding of computer vision's underlying theory and algorithms, this hands-on introduction is the ideal place to start. You'll learn techniques for object recognition, 3D reconstruction

, stereo imaging, augmented reality, and other computer vision applications as you follow clear examples written in Python. Programming Computer Vision with Python explains computer vision in broad terms that won't bog you down in theory. You get complete code samples with explanations on how to reproduce and build upon each example,

along with exercises to help you apply what you've learned. This book is ideal for students, researchers, and enthusiasts with basic programming and standard mathematical skills. Learn techniques used in robot navigation, medical image analysis, and other computer vision applications. Work with image mappings and transforms, such as texture warping and panorama

creation. Compute 3D reconstruction s from several images of the same scene. Organize images based on similarity or content, using clustering methods. Build efficient image retrieval techniques to search for images based on visual content. Use algorithms to classify image content and recognize objects. Access the popular OpenCV library through a Python interface.

**OpenCV
Computer
Vision with
Python**
Cambridge
University
Press
Get well
versed with
state-of-the-
art techniques
to tailor
training
processes and
boost the
performance
of computer
vision models
using machine
learning and
deep learning
techniques
Key Features
Develop, train,
and use deep
learning
algorithms for
computer
vision tasks
using
TensorFlow
2.x Discover

practical
recipes to
overcome
various
challenges
faced while
building
computer
vision models
Enable
machines to
gain a human
level
understanding
to recognize
and analyze
digital images
and videos
Book
Description
Computer
vision is a
scientific field
that enables
machines to
identify and
process digital
images and
videos. This
book focuses
on
independent

recipes to help
you perform
various
computer
vision tasks
using
TensorFlow.
The book
begins by
taking you
through the
basics of deep
learning for
computer
vision, along
with covering
TensorFlow
2.x's key
features, such
as the Keras
and
tf.data.Datase
t APIs. You'll
then learn
about the ins
and outs of
common
computer
vision tasks,
such as image
classification,
transfer

learning, image enhancing and styling, and object detection. The book also covers autoencoders in domains such as inverse image search indexes and image denoising, while offering insights into various architectures used in the recipes, such as convolutional neural networks (CNNs), region-based CNNs (R-CNNs), VGGNet, and You Only Look

Once (YOLO). Moving on, you'll discover tips and tricks to solve any problems faced while building various computer vision applications. Finally, you'll delve into more advanced topics such as Generative Adversarial Networks (GANs), video processing, and AutoML, concluding with a section focused on techniques to help you boost the performance of your networks. By

the end of this TensorFlow book, you'll be able to confidently tackle a wide range of computer vision problems using TensorFlow 2.x. What you will learn Understand how to detect objects using state-of-the-art models such as YOLOv3 Use AutoML to predict gender and age from images Segment images using different approaches such as FCNs and generative

models Learn how to improve your network's performance using rank-N accuracy, label smoothing, and test time augmentation Enable machines to recognize people's emotions in videos and real-time streams Access and reuse advanced TensorFlow Hub models to	perform image classification and object detection Generate captions for images using CNNs and RNNs Who this book is for This book is for computer vision developers and engineers, as well as deep learning practitioners looking for go-to solutions to various problems that	commonly arise in computer vision. You will discover how to employ modern machine learning (ML) techniques and deep learning architectures to perform a plethora of computer vision tasks. Basic knowledge of Python programming and computer vision is required.
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