Quick answers to common problems

OpenCV Computer Vision Application Programming Cookbook

Second Edition

Over 50 recipes to help you build computer vision applications in C++ using the OpenCV library

Robert Laganière

[PACKT] open source* PUBLISHING community experience distilled

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

filtering The most recent methods for image matching and object recognition are described and you ll discover how to process video from files or cameras as well as how to detect and track moving objects Techniques to achieve camera calibration and perform multiple view analysis will also be explained Finally you ll also get acquainted with recent approaches in machine learning and object classification Style and approach This book will arm you with the basics you need to start writing world aware applications right from a pixel level all the way through to processing video sequences

OpenCV Computer Vision Application Programming Cookbook Robert Laganière,2011 OpenCV 3 Computer Vision Application Programming Cookbook is appropriate for novice C programmers who want to learn how to use the OpenCV library to build computer vision applications It is also suitable for professional software developers wishing to be introduced to the concepts of computer vision programming It can also be used as a companion book in a university level computer vision courses It constitutes an excellent reference for graduate students and researchers in image processing and computer vision **OpenCV 4 Computer Vision Application Programming Cookbook** David Millán Escrivá,Robert Laganiere,2019-05-03 Discover interesting recipes to help you understand the concepts of object detection image processing and facial detection Key FeaturesExplore the latest features and APIs in OpenCV 4 and build computer vision algorithmsDevelop effective robust and fail safe vision for your applicationsBuild computer vision algorithms with machine learning capabilitiesBook Description OpenCV is an image and video processing library used for all types of image and video analysis Throughout the book you ll work through recipes that implement a variety of tasks such as facial recognition and detection With 70 self contained tutorials this book examines common pain points and best practices for computer vision CV developers Each recipe addresses a specific problem and offers a proven best practice solution with insights into how it works so that you can copy the code and configuration files and modify them to suit your needs This book begins by setting up OpenCV and explains how to manipulate pixels You ll understand how you can process images with classes and count pixels with histograms You ll also learn detecting describing and matching interest points As you advance through the chapters you ll get to grips with estimating projective relations in images reconstructing 3D scenes processing video sequences and tracking visual motion In the final chapters you ll cover deep learning concepts such as face and object detection By the end of the book you ll be able to confidently implement a range to computer vision algorithms to meet the technical requirements of your complex CV projects What you will learnInstall and create a program using the OpenCV librarySegment images into homogenous regions and extract meaningful objectsApply image filters to enhance image contentExploit image geometry to relay different views of a pictured sceneCalibrate the camera from different image observationsDetect people and objects in images using machine learning techniquesReconstruct a 3D scene from imagesExplore face detection using deep learningWho this book is for If you re a CV developer or professional who already uses or would like to use OpenCV for building computer vision software this book is for you You ll also find this book useful if

you re a C programmer looking to extend your computer vision skillset by learning OpenCV **OpenCV 3 Computer Vision Application Programming Cookbook - Third Edition** Robert Laganiere,2016-12-30 Over 100 recipes to help you build computer vision applications that make the most of the popular C library OpenCV 3About This Book Written to the latest gold standard specification of OpenCV 3 Master OpenCV the open source library of the computer vision community Master fundamental concepts in computer vision and image processing Learn about the important classes and functions of OpenCV with complete working examples applied to real imagesWho This Book Is ForOpenCV 3 Computer Vision Application Programming Cookbook Third Edition is appropriate for novice C programmers who want to learn how to use the OpenCV library to build computer vision applications It is also suitable for professional software developers who wish to be introduced to the concepts of computer vision programming It can also be used as a companion book for university level computer vision courses It constitutes an excellent reference for graduate students and researchers in image processing and computer vision What You Will Learn Install and create a program using the OpenCV library Process an image by manipulating its pixels Analyze an image using histograms Segment images into homogenous regions and extract meaningful objects Apply image filters to enhance image content Exploit the image geometry in order to relay different views of a pictured scene Calibrate the camera from different image observations Detect faces and people in images using machine learning techniquesIn DetailMaking your applications see has never been easier with OpenCV With it you can teach your robot how to follow your cat write a program to correctly identify the members of One Direction or even help you find the right colors for your redecoration OpenCV 3 Computer Vision Application Programming Cookbook Third Edition provides a complete introduction to the OpenCV library and explains how to build your first computer vision program You will be presented with a variety of computer vision algorithms and exposed to important concepts in image and video analysis that will enable you to build your own computer vision applications This book helps you to get started with the library and shows you how to install and deploy the OpenCV library to write effective computer vision applications following good programming practices You will learn how to read and write images and manipulate their pixels Different techniques for image enhancement and shape analysis will be presented You will learn how to detect specific image features such as lines circles or corners You will be introduced to the concepts of mathematical morphology and image filtering The most recent methods for image matching and object recognition are described and you ll discover how to process video from files or cameras as well as how to detect and track moving objects Techniques to achieve camera calibration and perform multiple view analysis will also be explained Finally you ll also get acquainted with recent approaches in machine learning and object classification **OpenCV with Python By Example** Prateek Joshi,2015-09-22 Build real world computer vision applications and develop cool demos using OpenCV for Python About 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 searches 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 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 application In Detail 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 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 approach This 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 *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

Computer Vision for the Web Foat Akhmadeev,2015-10-14 Unleash the power of the Computer Vision algorithms in JavaScript to develop vision enabled web content About This Book Explore the exciting world of image processing and face and gesture recognition and implement them in your website Develop wonderful web projects to implement Computer Vision algorithms in an effective way A fast paced guide to help you deal with real world Computer Vision applications using JavaScript libraries Who This Book Is For If you have an interest in Computer Vision or wish to apply Computer Vision algorithms such as face custom object and gesture recognition for an online application then this book is ideal for you Prior understanding of the JavaScript language and core mathematical concepts is recommended What You Will Learn Apply complex Computer Vision algorithms in your applications using JavaScript Put together different JavaScript libraries to discover objects in photos Get to grips with developing simple computer vision applications on your own Understand when and why you should use different computer vision methods Apply various image filters to images and videos Recognize and track many different objects including face and face particles using powerful face recognition algorithms Explore ways to control your browser without touching the mouse or keyboard In Detail JavaScript is a dynamic and prototype based programming language supported by every browser today JavaScript libraries boast outstanding functionalities that enable you to furnish your own Computer Vision projects making it easier to develop JavaScript based applications especially for web centric technologies It makes the implementation of Computer Vision algorithms easier as it supports scheme based

functional programming This book will give you an insight into controlling your applications with gestures and head motion and readying them for the web Packed with real world tasks it begins with a walkthrough of the basic concepts of Computer Vision that the JavaScript world offers us and you ll implement various powerful algorithms in your own online application Then we move on to a comprehensive analysis of JavaScript functions and their applications Furthermore the book will show you how to implement filters and image segmentation and use tracking js and jsfeat libraries to convert your browser into Photoshop Subjects such as object and custom detection feature extraction and object matching are covered to help you find an object in a photo You will see how a complex object such as a face can be recognized by a browser as you move toward the end of the book Finally you will focus on algorithms to create a human interface By the end of this book you will be familiarized with the application of complex Computer Vision algorithms to develop your own applications without spending much time learning sophisticated theory Style and approach This book is an easy to follow project based guide that throws you directly into the excitement of the Computer Vision theme A more in less approach is followed by important concepts explained in a to the point easy to understand manner **OpenCV Computer Vision Application Programming Cookbook Second Edition** Robert Laganière,2014 Over 50 recipes to help you build computer vision applications in C using the OpenCV library In Detail OpenCV Computer Vision Application Programming Cookbook Second Edition is your guide to the development of computer vision applications The book shows you how to install and deploy the OpenCV library to write an effective computer vision application Different techniques for image enhancement pixel manipulation and shape analysis will be presented You will also learn how to process video from files or cameras and detect and track moving objects You will also be introduced to recent approaches in machine learning and object classification This book is a comprehensive reference guide that exposes you to practical and fundamental computer vision concepts illustrated by extensive examples What You Will Learn Install and create a program using the OpenCV library Process an image by manipulating its pixels Analyze an image using histograms Segment images into homogenous regions and extract meaningful objects Apply image filters to enhance image content Exploit image geometry in order to relate different views of a pictured scene Calibrate the camera from different image observations Detect faces and people in images using machine learning techniques Downloading the example code for this book You can download the example code files for all Packt books you have purchased from your account at http www PacktPub com If you purchased this book elsewhere you can visit http www PacktPub com support and register to have the files e mailed directly to you *OpenCV Android Programming By Example* Amgad Muhammad,2015-12-15 Develop vision aware and intelligent Android applications with the robust OpenCV library About This Book This is the most up to date book on OpenCV Android programming on the market at the moment There is no direct competition for our title Based on a technology that is increasing in popularity proven by activity in forums related to this topic This book uniquely covers applications such as the Panoramic viewer and Automatic Selfie among others Who This

Book Is For If you are an Android developer and want to know how to implement vision aware applications using OpenCV then this book is definitely for you It would be very helpful if you understand the basics of image processing and computer vision but no prior experience is required What You Will Learn Identify and install all the elements needed to start building vision aware Android applications Explore image representation colored and gray scale Recognize and apply convolution operations and filtering to deal with noisy data Use different shape analysis techniques Extract and identify interest points in an image Understand and perform object detection Run native computer vision algorithms and gain performance boosts In Detail Starting from the basics of computer vision and OpenCV we ll take you all the way to creating exciting applications You will discover that though computer vision is a challenging subject the ideas and algorithms used are simple and intuitive and you will appreciate the abstraction layer that OpenCV uses to do the heavy lifting for you Packed with many examples the book will help you understand the main data structures used within OpenCV and how you can use them to gain performance boosts Next we will discuss and use several image processing algorithms such as histogram equalization filters and color space conversion You then will learn about image gradients and how they are used in many shape analysis techniques such as edge detection Hough Line Transform and Hough Circle Transform In addition to using shape analysis to find things in images you will learn how to describe objects in images in a more robust way using different feature detectors and descriptors By the end of this book you will be able to make intelligent decisions using the famous Adaboost learning algorithm Style and approach An easy to follow tutorial packed with hands on examples Each topic is explained and placed in context and the book supplies full details of the concepts used for added proficiency **Mastering OpenCV Android Application Programming** Salil Kapur,Nisarg Thakkar,2015-07-29 OpenCV is a famous computer vision library used to analyze and transform copious amounts of image data even in real time and on a mobile device This book focuses on leveraging mobile platforms to build interactive and useful applications The book starts off with an introduction to OpenCV and Android and how they interact with each other using OpenCV s Java API You ll also discover basic image processing techniques such as erosion and dilation of images before walking through how to build more complex applications such as object detection image stitching and face detection As you progress you will be introduced to OpenCV s machine learning framework enabling you to make your applications smarter The book ends with a short chapter covering useful Android tips and tricks and some common errors and solutions that people might face while building an application By the end of the book readers will have gained more expertise in building their own OpenCV projects for the Android platform and integrating OpenCV application programming into existing projects OpenCV 4 Computer Vision Application Programming Cookbook - Fourth Edition David Escriva,Robert Laganiere,2019 Discover interesting recipes to help you understand the concepts of object detection image processing and facial detection Key Features Explore the latest features and APIs in OpenCV 4 and build computer vision algorithms Develop effective robust and fail safe vision for your applications Build computer vision

algorithms with machine learning capabilities Book Description OpenCV is an image and video processing library used for all types of image and video analysis Throughout the book you ll work through recipes that implement a variety of tasks With 70 self contained tutorials this book examines common pain points and best practices for computer vision CV developers Each recipe addresses a specific problem and offers a proven best practice solution with insights into how it works so that you can copy the code and configuration files and modify them to suit your needs This book begins by setting up OpenCV and explains how to manipulate pixels You ll understand how you can process images with classes and count pixels with histograms You ll also learn detecting describing and matching interest points As you advance through the chapters you ll get to grips with estimating projective relations in images reconstructing 3D scenes processing video sequences and tracking visual motion In the final chapters you ll cover deep learning concepts such as face and object detection By the end of the book you ll be able to confidently implement a range of computer vision algorithms to meet the technical requirements of your complex CV projects What you will learn Install and create a program using the OpenCV library Segment images into homogenous regions and extract meaningful objects Apply image filters to enhance image content Exploit image geometry to relay different views of a pictured scene Calibrate the camera from different image observations Detect people and objects in images using machine learning techniques Reconstruct a 3D scene from images Explore face detection using deep learning Who this book is for If you re a CV developer or professional who already uses or would like to use OpenCV for building computer vision software this book is for you You ll also find this book useful if you re a C programmer looking to extend your computer vision skillset by learning OpenCV Downloading the example code for this ebook You can download the example code files for this ebook on GitHub at the following link https github *OpenCV 3 Computer Vision with Python Cookbook* Aleksei Spizhevoi,Aleksandr Rybnikov,2018-03-23 OpenCV 3 is a native cross platform library for computer vision machine learning and image processing OpenCV s convenient high level APIs hide very powerful internals designed for computational efficiency that can take advantage of multicore and GPU processing This book will help you tackle increasingly challenging computer vision problems **Machine Learning for OpenCV 4** Aditya Sharma,Vishwesh Ravi Shrimali,Michael Beyeler,2019-09-06 A practical guide to understanding the core machine learning and deep learning algorithms and implementing them to create intelligent image processing systems using OpenCV 4 Key FeaturesGain insights into machine learning algorithms and implement them using OpenCV 4 and scikit learnGet up to speed with Intel OpenVINO and its integration with OpenCV 4Implement high performance machine learning models with helpful tips and best practicesBook Description OpenCV is an opensource library for building computer vision apps The latest release OpenCV 4 offers a plethora of features and platform improvements that are covered comprehensively in this up to date second edition You ll start by understanding the new features and setting up OpenCV 4 to build your computer vision applications You will explore the fundamentals of machine learning and even learn to design different algorithms that can be used for image processing

Gradually the book will take you through supervised and unsupervised machine learning You will gain hands on experience using scikit learn in Python for a variety of machine learning applications Later chapters will focus on different machine learning algorithms such as a decision tree support vector machines SVM and Bayesian learning and how they can be used for object detection computer vision operations You will then delve into deep learning and ensemble learning and discover their real world applications such as handwritten digit classification and gesture recognition Finally you ll get to grips with the latest Intel OpenVINO for building an image processing system By the end of this book you will have developed the skills you need to use machine learning for building intelligent computer vision applications with OpenCV 4 What you will learnUnderstand the core machine learning concepts for image processingExplore the theory behind machine learning and deep learning algorithm designDiscover effective techniques to train your deep learning modelsEvaluate machine learning models to improve the performance of your modelsIntegrate algorithms such as support vector machines and Bayes classifier in your computer vision applicationsUse OpenVINO with OpenCV 4 to speed up model inferenceWho this book is for This book is for Computer Vision professionals machine learning developers or anyone who wants to learn machine learning algorithms and implement them using OpenCV 4 If you want to build real world Computer Vision and image processing applications powered by machine learning then this book is for you Working knowledge of Python programming is required to get the most out of this book *OpenCV 3* Robert Laganière,2017 Making your applications see has never been easier with OpenCV With it you can teach your robot how to follow your cat write a program to correctly identify the members of One Direction or even help you find the right colors for your redecoration OpenCV 3 Computer Vision Application Programming Solutions provides a complete introduction to the OpenCV library and explains how to build your first computer vision program You will be presented with a variety of computer vision algorithms and exposed to important concepts in image and video analysis which will enable you to build your own computer vision applications This video helps you to get started with the OpenCV library and shows you how to install and deploy it to write effective computer vision applications following good programming practices You will learn how to read and write images and manipulate their pixels Different techniques for image enhancement and shape analysis will be presented You will learn how to detect specific image features such as lines circles or corners You will be introduced to the concepts of mathematical morphology and image filtering Resource description page Mastering OpenCV 3 Daniel Lelis Baggio,Shervin Emami,David Millan Escriva,Khvedchenia Ievgen,Jason Saragih,Roy Shilkrot,2017-04-28 Practical Computer Vision Projects About This Book Updated for OpenCV 3 this book covers new features that will help you unlock the full potential of OpenCV 3 Written by a team of 7 experts each chapter explores a new aspect of OpenCV to help you make amazing computer vision aware applications Project based approach with each chapter being a complete tutorial showing you how to apply OpenCV to solve complete problems Who 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 What You Will Learn Execute basic image processing operations and cartoonify an image Build an OpenCV project natively with Raspberry Pi and cross compile it for Raspberry Pi text Extend the natural feature tracking algorithm to support the tracking of multiple image targets on a video Use OpenCV 3 s new 3D visualization framework to illustrate the 3D scene geometry Create an application for Automatic Number Plate Recognition ANPR using a support vector machine and Artificial Neural Networks Train and predict pattern recognition algorithms to decide whether an image is a number plate Use POSIT for the six degrees of freedom head pose Train a face recognition database using deep learning and recognize faces from that database In Detail As we become more capable of handling data in every kind we are becoming more reliant on visual input and what we can do with those self driving cars face recognition and even augmented reality applications and games This is all powered by Computer Vision This book will put you straight to work in creating powerful and unique computer vision applications Each chapter is structured around a central project and deep dives into an important aspect of OpenCV such as facial recognition image target tracking making augmented reality applications the 3D visualization framework and machine learning You ll learn how to make AI that can remember and use neural networks to help your applications learn By the end of the book you will have created various working prototypes with the projects in the book and will be well versed with the new features of OpenCV3 Style and approach This book takes a project based approach and helps you learn about the new features by putting them to work by implementing them in your own projects Learning OpenCV 3 Computer Vision with Python Joe Minichino,2015 Unleash the power of computer vision with Python using OpenCVAbout This Book Create impressive applications with OpenCV and Python Familiarize yourself with advanced machine learning concepts Harness the power of computer vision with this easy to follow guideWho This Book Is ForIntended for novices to the world of OpenCV and computer vision as well as OpenCV veterans that want to learn about what s new in OpenCV 3 this book is useful as a reference for experts and a training manual for beginners or for anybody who wants to familiarize themselves with the concepts of object classification and detection in simple and understandable terms Basic knowledge about Python and programming concepts is required although the book has an easy learning curve both from a theoretical and coding point of view What You Will Learn Install and familiarize yourself with OpenCV 3 s Python API Grasp the basics of 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 applicationIn DetailOpenCV 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 approachThis book is a comprehensive guide to the brand new OpenCV 3 with Python to develop real life computer vision applications *Computer Vision Projects with OpenCV and Python 3* Matthew Rever,2018-12-28 Gain a working knowledge of advanced machine learning and explore Python s powerful tools for extracting data from images and videos Key FeaturesImplement image classification and object detection using machine learning and deep learningPerform image classification object detection image segmentation and other Computer Vision tasksCrisp content with a practical approach to solving real world problems in Computer VisionBook Description Python is the ideal programming language for rapidly prototyping and developing production grade codes for image processing and Computer Vision with its robust syntax and wealth of powerful libraries This book will help you design and develop production grade Computer Vision projects tackling real world problems With the help of this book you will learn how to set up Anaconda and Python for the major OSes with cutting edge third party libraries for Computer Vision You ll learn state of the art techniques for classifying images finding and identifying human postures and detecting faces within videos You will use powerful machine learning tools such as OpenCV Dlib and TensorFlow to build exciting projects such as classifying handwritten digits detecting facial features and much more The book also covers some advanced projects such as reading text from license plates from real world images using Google s Tesseract software and tracking human body poses using DeeperCut within TensorFlow By the end of this book you will have the expertise required to build your own Computer Vision projects using Python and its associated libraries What you will learnInstall and run major Computer Vision packages within PythonApply powerful support vector machines for simple digit classificationUnderstand deep learning with TensorFlowBuild a deep learning classifier for general imagesUse LSTMs for automated image captioningRead text from real world imagesExtract human pose data from imagesWho this book is for Python programmers and machine learning developers who wish to build exciting Computer Vision projects using the power of machine learning and OpenCV will find this book useful The only prerequisite for this book is that you should have a sound knowledge of Python programming

Opencv Computer Vision Application Programming Cookbook Second Edition Laganiere Robert Book Review: Unveiling the Power of Words

In some sort of driven by information and connectivity, the power of words has are more evident than ever. They have the ability to inspire, provoke, and ignite change. Such could be the essence of the book **Opencv Computer Vision Application Programming Cookbook Second Edition Laganiere Robert**, a literary masterpiece that delves deep in to the significance of words and their affect our lives. Published by a renowned author, this captivating work takes readers on a transformative journey, unraveling the secrets and potential behind every word. In this review, we will explore the book is key themes, examine its writing style, and analyze its overall impact on readers.

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Opencv Computer Vision Application Programming Cookbook Second Edition Laganiere Robert Introduction

In this digital age, the convenience of accessing information at our fingertips has become a necessity. Whether its research papers, eBooks, or user manuals, PDF files have become the preferred format for sharing and reading documents. However, the cost associated with purchasing PDF files can sometimes be a barrier for many individuals and organizations. Thankfully, there are numerous websites and platforms that allow users to download free PDF files legally. In this article, we will explore some of the best platforms to download free PDFs. One of the most popular platforms to download free PDF files is Project Gutenberg. This online library offers over 60,000 free eBooks that are in the public domain. From classic literature to historical documents, Project Gutenberg provides a wide range of PDF files that can be downloaded and enjoyed on various devices. The website is user-friendly and allows users to search for specific titles or browse through different categories. Another reliable platform for downloading Opencv Computer Vision Application Programming Cookbook Second Edition Laganiere Robert free PDF files is Open Library. With its vast collection of over 1 million eBooks, Open Library has something for every reader. The website offers a seamless experience by providing options to borrow or download PDF files. Users simply need to create a free account to access this treasure trove of knowledge. Open Library also allows users to contribute by uploading and sharing their own PDF files, making it a collaborative platform for book enthusiasts. For those interested in academic resources, there are websites dedicated to providing free PDFs of research papers and scientific articles. One such website is Academia.edu, which allows researchers and scholars to share their work with a global audience. Users can download PDF files of research papers, theses, and dissertations covering a wide range of subjects. Academia.edu also provides a platform for discussions and networking within the academic community. When it comes to downloading Opencv Computer Vision Application Programming Cookbook Second Edition Laganiere Robert free PDF files of magazines, brochures, and catalogs, Issuu is a popular choice. This digital publishing platform hosts a vast collection of publications from around the world. Users can search for specific titles or explore various categories and genres. Issuu offers a seamless reading experience with its user-friendly interface and allows users to download PDF files for offline reading. Apart from dedicated platforms, search engines also play a crucial role in finding free PDF files. Google, for instance, has an advanced search feature that allows users to filter results by file type. By specifying the file type as "PDF," users can find websites that offer free PDF downloads on a specific topic. While downloading Opencv Computer Vision Application Programming Cookbook Second Edition Laganiere Robert free PDF files is convenient, its important to note that copyright laws must be respected. Always ensure that the PDF files you download are legally available for free. Many authors and publishers voluntarily provide free PDF versions of their work, but its essential to be cautious and verify the authenticity of the source before downloading Opencv Computer Vision Application Programming Cookbook Second Edition Laganiere Robert. In conclusion, the internet offers numerous platforms and websites that allow users to download free PDF files

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