

# Opencv C Vs Python Vs Matlab For Computer Vision

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**Soft Computing Based Medical Image Analysis** - Nilanjan Dey 2018-01-18  
Soft Computing Based Medical Image Analysis presents the foremost techniques of soft computing in medical image analysis and processing. It includes image enhancement, segmentation, classification-

based soft computing, and their application in diagnostic imaging, as well as an extensive background for the development of intelligent systems based on soft computing used in medical image analysis and processing. The book introduces the theory and concepts of digital image

analysis and processing based on soft computing with real-world medical imaging applications. Comparative studies for soft computing based medical imaging techniques and traditional approaches in medicine are addressed, providing flexible and sophisticated application-oriented solutions. Covers numerous soft computing approaches, including fuzzy logic, neural networks, evolutionary computing, rough sets and Swarm intelligence Presents transverse research in soft computing formation from various engineering and industrial sectors in the medical domain Highlights challenges and the future scope for soft computing based medical analysis and processing techniques

Advanced Technologies in Modern Robotic Applications -

Chenguang Yang 2016-05-18

This book presents in a systematic manner the advanced technologies used for various modern robot applications. By bringing fresh ideas, new concepts, novel

methods and tools into robot control, robot vision, human robot interaction, teleoperation of robot and multiple robots system, we are to provide a state-of-the-art and comprehensive treatment of the advanced technologies for a wide range of robotic applications. Particularly, we focus on the topics of advanced control and obstacle avoidance techniques for robot to deal with unknown perturbations, of visual servoing techniques which enable robot to autonomously operate in a dynamic environment, and of advanced techniques involved in human robot interaction.

The book is primarily intended for researchers and engineers in the robotic and control community. It can also serve as complementary reading for robotics at the both graduate and undergraduate levels.

**Learning OpenCV 4 Computer Vision with Python 3** - Joseph Howse  
2020-02-20

Updated for OpenCV 4 and Python 3, this book covers the latest on depth cameras, 3D

tracking, augmented reality, and deep neural networks, helping you solve real-world computer vision problems with practical code

### Key Features

Build powerful computer vision applications in concise code with OpenCV 4 and Python 3

Learn the fundamental concepts of image processing, object classification, and 2D and 3D tracking

Train, use, and understand machine learning models such as Support Vector Machines (SVMs) and neural networks

### Book Description

Computer vision is a rapidly evolving science, encompassing diverse applications and techniques. This book will not only help those who are getting started with computer vision but also experts in the domain. You'll be able to put theory into practice by building apps with OpenCV 4 and Python 3. You'll start by understanding OpenCV 4 and how to set it up with Python 3 on various platforms. Next, you'll learn how to perform basic operations such as reading, writing, manipulating, and displaying still images,

videos, and camera feeds. From taking you through image processing, video analysis, and depth estimation and segmentation, to helping you gain practice by building a GUI app, this book ensures you'll have opportunities for hands-on activities. Next, you'll tackle two popular challenges: face detection and face recognition. You'll also learn about object classification and machine learning concepts, which will enable you to create and use object detectors and classifiers, and even track objects in movies or video camera feed. Later, you'll develop your skills in 3D tracking and augmented reality. Finally, you'll cover ANNs and DNNs, learning how to develop apps for recognizing handwritten digits and classifying a person's gender and age. By the end of this book, you'll have the skills you need to execute real-world computer vision projects. What you will learn

### Install and familiarize yourself with OpenCV 4's Python 3 bindings

### Understand image processing and video analysis basics

### Use a

depth camera to distinguish foreground and background regions Detect and identify objects, and track their motion in videos Train and use your own models to match images and classify objects Detect and recognize faces, and classify their gender and age Build an augmented reality application to track an image in 3D Work with machine learning models, including SVMs, artificial neural networks (ANNs), and deep neural networks (DNNs) Who this book is for If you are interested in learning computer vision, machine learning, and OpenCV in the context of practical real-world applications, then this book is for you. This OpenCV book will also be useful for anyone getting started with computer vision as well as experts who want to stay up-to-date with OpenCV 4 and Python 3.

Although no prior knowledge of image processing, computer vision or machine learning is required, familiarity with basic Python programming is a must.

**Advances in Visual Computing** - George Bebis

2020-12-11

This two-volume set of LNCS 12509 and 12510 constitutes the refereed proceedings of the 15th International Symposium on Visual Computing, ISVC 2020, which was supposed to be held in San Diego, CA, USA in October 2020, took place virtually instead due to the COVID-19 pandemic. The 118 papers presented in these volumes were carefully reviewed and selected from 175 submissions. The papers are organized into the following topical sections: Part I: deep learning; segmentation; visualization; video analysis and event recognition; ST: computational bioimaging; applications; biometrics; motion and tracking; computer graphics; virtual reality; and ST: computer vision advances in geo-spatial applications and remote sensing Part II: object recognition/detection/categorization; 3D reconstruction; medical image analysis; vision for robotics; statistical pattern recognition; posters

**OpenCV: Computer Vision Projects with Python** - Joseph

Howse 2016-10-24

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 transformations to simulate the

look of old photos, movies, or video games Apply geometric transformations 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!.

Smart Solutions in Today's Transport - Jerzy Mikulski  
2017-09-08

This book constitutes the thoroughly refereed proceedings of the 17th International Conference on Transport Systems Telematics, TST 2017, held in Katowice-Ustrón, Poland, in April 2017. The 40 full papers presented in this volume were carefully reviewed and selected from 128 submissions. They present and organize the knowledge from within the field of intelligent transportation systems, the specific solutions applied in it and their influence on improving efficiency of transport systems.

Confidential Computing - Vicente Garcia Diaz 2022-09-22

This book highlights the three pillars of data security, viz protecting data at rest, in transit, and in use. Protecting data at rest means using methods such as encryption or tokenization so that even if data is copied from a server or database, a thief cannot access the information. Protecting data in transit means making sure unauthorized parties cannot see information as it moves between servers and applications. There are well-established ways to provide both kinds of protection. Protecting data while in use, though, is especially tough because applications need to have data in the clear—not encrypted or otherwise protected—in order to compute. But that means malware can dump the contents of memory to steal information. It does not really matter if the data was encrypted on a server’s hard drive if it is stolen while exposed in memory. As computing moves to span multiple environments—from on-premise to public cloud to

edge—organizations need protection controls that help safeguard sensitive IP and workload data wherever the data resides. Many organizations have declined to migrate some of their most sensitive applications to the cloud because of concerns about potential data exposure. Confidential computing makes it possible for different organizations to combine data sets for analysis without accessing each other’s data.

**Building Computer Vision Applications Using Artificial Neural Networks** - Shamshad Ansari 2020-07-17

Apply computer vision and machine learning concepts in developing business and industrial applications using a practical, step-by-step approach. The book comprises four main sections starting with setting up your programming environment and configuring your computer with all the prerequisites to run the code examples. Section 1 covers the basics of image and video processing with code examples of how to manipulate

and extract useful information from the images. You will mainly use OpenCV with Python to work with examples in this section. Section 2 describes machine learning and neural network concepts as applied to computer vision. You will learn different algorithms of the neural network, such as convolutional neural network (CNN), region-based convolutional neural network (R-CNN), and YOLO. In this section, you will also learn how to train, tune, and manage neural networks for computer vision. Section 3 provides step-by-step examples of developing business and industrial applications, such as facial recognition in video surveillance and surface defect detection in manufacturing. The final section is about training neural networks involving a large number of images on cloud infrastructure, such as Amazon AWS, Google Cloud Platform, and Microsoft Azure. It walks you through the process of training distributed neural networks for computer vision on GPU-based cloud

infrastructure. By the time you finish reading Building Computer Vision Applications Using Artificial Neural Networks and working through the code examples, you will have developed some real-world use cases of computer vision with deep learning. What You Will Learn · Employ image processing, manipulation, and feature extraction techniques · Work with various deep learning algorithms for computer vision · Train, manage, and tune hyperparameters of CNNs and object detection models, such as R-CNN, SSD, and YOLO · Build neural network models using Keras and TensorFlow · Discover best practices when implementing computer vision applications in business and industry · Train distributed models on GPU-based cloud infrastructure Who This Book Is For Data scientists, analysts, and machine learning and software engineering professionals with Python programming knowledge. [Unity 2018 Augmented Reality Projects](#) - Jesse Glover

2018-07-30

Create engaging Augmented Reality (AR) applications with Unity 3D that can be experienced with devices such as HoloLens and Daydream

**Key Features** Learn the principles of AR application development Work with the most popular sensors used in AR games and applications across Android, Apple and Windows Build experiences with interactive objects, physics, UI, animations, and C# scripting

**Book Description** Augmented Reality allows for radical innovations in countless areas. It magically blends the physical and virtual worlds, bringing applications from a screen into your hands. Meanwhile, Unity has now become the leading platform to develop augmented reality experiences, as it provides a great pipeline for working with 3D assets. Using a practical and project-based approach, *Unity 2018 Augmented Reality Projects* educates you about the specifics of augmented reality development in Unity 2018. This book teaches you

how to use Unity in order to develop AR applications which can be experienced with devices such as HoloLens and Daydream. You will learn to integrate, animate, and overlay 3D objects on your camera feed, before gradually moving on to implementing sensor-based AR applications. In addition to this, you will explore the technical considerations that are especially important and possibly unique to AR. The projects in the book demonstrate how you can build a variety of AR experiences, whilst also giving insights into C# programming as well as the Unity 3D game engine via the interactive Unity Editor. By the end of the book, you will be equipped to develop rich, interactive augmented reality experiences for a range of AR devices and platforms using Unity. What you will learn

**Build and run AR applications for specific headsets, including HoloLens and Daydream**

**Create 3D scenes with Unity and other 3D tools while learning about world space and**

scale Move around your AR scenes using locomotion and teleportation Create filters or overlays that work in tandem with facial recognition software Use GPS, geolocation services, and the camera feed to create a fitness application Integrate AR and VR concepts together in a single application Who this book is for Unity 2018 Augmented Reality Projects is for you if you're a game developer familiar with 3D computer graphics and interested in building your own AR games or applications. Any experience in Unity and C# is an advantage.

### **Learning Robotics using**

**Python** - Lentin Joseph

2018-06-27

Design, simulate, and program interactive robots Key Features Design, simulate, build, and program an interactive autonomous mobile robot Leverage the power of ROS, Gazebo, and Python to enhance your robotic skills A hands-on guide to creating an autonomous mobile robot with the help of ROS and Python Book Description Robot

Operating System (ROS) is one of the most popular robotics software frameworks in research and industry. It has various features for implementing different capabilities in a robot without implementing them from scratch. This book starts by showing you the fundamentals of ROS so you understand the basics of differential robots. Then, you'll learn about robot modeling and how to design and simulate it using ROS. Moving on, we'll design robot hardware and interfacing actuators. Then, you'll learn to configure and program depth sensors and LIDARs using ROS. Finally, you'll create a GUI for your robot using the Qt framework. By the end of this tutorial, you'll have a clear idea of how to integrate and assemble everything into a robot and how to bundle the software package. What you will learn Design a differential robot from scratch Model a differential robot using ROS and URDF Simulate a differential robot using ROS and Gazebo Design robot

hardware electronics Interface robot actuators with embedded boards Explore the interfacing of different 3D depth cameras in ROS Implement autonomous navigation in ChefBot Create a GUI for robot control Who this book is for This book is for those who are conducting research in mobile robotics and autonomous navigation. As well as the robotics research domain, this book is also for the robot hobbyist community. You're expected to have a basic understanding of Linux commands and Python.

**Handbook of Research on Advanced Concepts in Real-Time Image and Video Processing** - Anwar, Md.

Imtiyaz 2017-07-13  
Technological advancements have created novel applications for image and video processing. With these developments, real-world processing problems can be solved more easily. The Handbook of Research on Advanced Concepts in Real-Time Image and Video Processing is a pivotal reference source for the latest

research findings on the design, realization, and deployment of image and video processing systems meant for real-time environments. Featuring extensive coverage on relevant areas such as feature detection, reconfigurable computing, and stream processing, this publication is an ideal resource for academics, researchers, graduate students, and technology developers.

**Smart Technology Applications in Business Environments** - Issa,

Tomayess 2017-03-03  
Technology continues to make great strides in society by providing opportunities for advancement, inclusion, and global competency. As new systems and tools arise, novel applications are created as well. Smart Technology Applications in Business Environments is an essential reference source for the latest scholarly research on the risks and opportunities of utilizing the latest technologies in different aspects of society such as education, healthcare

systems, and corporations. Featuring extensive coverage on a broad range of topics and perspectives including virtual reality, robotics, and social media, this publication is ideally designed for academicians, researchers, students, and practitioners seeking current research on the improvement and increased productivity from the implementation of smart technologies.

**A Practical Introduction to Computer Vision with OpenCV, Enhanced Edition -**

Kenneth Dawson-Howe  
2014-04-24

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 OpenCV 2). 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 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 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 operations & camera models; edge detection; 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

**Information Modelling and Knowledge Bases XXXII** - M. Tropmann-Frick 2021-01-04  
Information modeling and knowledge bases are important technologies for academic and industrial research that goes beyond the traditional borders of information systems and computer science. The amount and complexity of information to be dealt with grows continually, as do the levels of abstraction and the size of databases. This book presents the proceedings of the 30th International Conference on Information Modelling and Knowledge Bases (EJC2020), due to be held in Hamburg, Germany on 8 and 9 June 2020, but instead held as a virtual conference on the same dates due to the Corona-virus pandemic restrictions. The conference provides a research forum for the exchange of scientific results and experiences, and brings together experts from different areas of computer science and other disciplines with a common interest in information modeling and knowledge

bases. The subject touches on many disciplines, with philosophy and logic, cognitive science, knowledge management, linguistics and management science, as well as the emerging fields of data science and machine learning, all being relevant areas. The 23 reviewed, selected, and upgraded contributions included here are the result of presentations, comments, and discussions from the conference, and reflect the themes of the conference sessions: learning and linguistics; systems and processes; data and knowledge representation; models and interfaces; formalizations and reasoning; models and modeling; machine learning; models and programming; environment and predictions; modeling emotion; and social networks. The book provides an overview of current research and applications, and will be of interest to all those working in the field.

**Machine Learning for OpenCV 4** - Aditya Sharma  
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 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 4.

What you will learn

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 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.

*Cutting Edge Research in Technologies* - Constantin Volosencu 2015-10-21

The book *Cutting Edge Research in Technologies*

responds to the great interest for innovation in the large domain of technologies. It presents contributions by researchers with high expertise in the field, serving as a valuable reference for scientists, researchers, graduate students, and professionals. The book has five chapters covering the following subjects: information and communication technologies and services with the aim of improving the quality of life and the mobility of users, localisation technologies for deployment of mobile robots in dynamic environments, embedded video processing circuit design flow in the Python language, data communications and networking, and textile weaving.

**Proceedings of the 1st International Conference on New Materials, Machinery and Vehicle Engineering** - J. Xu 2022-05-06

New materials are constantly being developed which may improve or transform many aspects of our lives, and

nowhere is this more exciting than in the fields of vehicle and machinery technology. This book presents the proceedings of the 2022 International Conference on New Materials, Machinery and Vehicle Engineering (NMMVE 2022), held as a virtual event due to the COVID-19 pandemic and travel restrictions, from 18 - 20 March 2022. NMMVE 2022 provides an international forum for researchers and engineers to present and discuss recent advances, new techniques, and applications in the fields of new materials, machinery and vehicle engineering, and attracts academics, scientists, engineers, postgraduates, and other professionals from a wide range of universities and institutions. A total of 121 submissions were received, from which 48 were accepted for inclusion in the conference and proceeding after a rigorous, standard single-blind reviewing process. The papers are grouped into 3 sections: machinery (30 papers); new materials (11 papers); and vehicle engineering (7 papers).

Providing an overview of the latest developments in these fields, the book will be of interest to all those wishing to know more about new materials and machine and vehicle engineering.

### Machine Learning for OpenCV

- Michael Beyeler 2017-07-14  
Expand your OpenCV knowledge and master key concepts of machine learning using this practical, hands-on guide. About This Book Load, store, edit, and visualize data using OpenCV and Python Grasp the fundamental concepts of classification, regression, and clustering Understand, perform, and experiment with machine learning techniques using this easy-to-follow guide Evaluate, compare, and choose the right algorithm for any task Who This Book Is For This book targets Python programmers who are already familiar with OpenCV; this book will give you the tools and understanding required to build your own machine learning systems, tailored to practical real-world tasks.

What You Will Learn Explore and make effective use of OpenCV's machine learning module Learn deep learning for computer vision with Python Master linear regression and regularization techniques Classify objects such as flower species, handwritten digits, and pedestrians Explore the effective use of support vector machines, boosted decision trees, and random forests Get acquainted with neural networks and Deep Learning to address real-world problems Discover hidden structures in your data using k-means clustering Get to grips with data pre-processing and feature engineering In Detail Machine learning is no longer just a buzzword, it is all around us: from protecting your email, to automatically tagging friends in pictures, to predicting what movies you like. Computer vision is one of today's most exciting application fields of machine learning, with Deep Learning driving innovative systems such as self-driving cars and Google's DeepMind. OpenCV

lies at the intersection of these topics, providing a comprehensive open-source library for classic as well as state-of-the-art computer vision and machine learning algorithms. In combination with Python Anaconda, you will have access to all the open-source computing libraries you could possibly ask for. Machine learning for OpenCV begins by introducing you to the essential concepts of statistical learning, such as classification and regression. Once all the basics are covered, you will start exploring various algorithms such as decision trees, support vector machines, and Bayesian networks, and learn how to combine them with other OpenCV functionality. As the book progresses, so will your machine learning skills, until you are ready to take on today's hottest topic in the field: Deep Learning. By the end of this book, you will be ready to take on your own machine learning problems, either by building on the existing source code or developing your own algorithm

from scratch! Style and approach OpenCV machine learning connects the fundamental theoretical principles behind machine learning to their practical applications in a way that focuses on asking and answering the right questions. This book walks you through the key elements of OpenCV and its powerful machine learning classes, while demonstrating how to get to grips with a range of models.

**OpenCV-Python with MySQL for Absolute Beginners -**

Vivian Siahaan 2019-09-14

This book consists of a series of step-by-step tutorials for creating mini projects in integrating pyqt, python, opencv, and mysql database.

By studying this book, you will understand how to program python GUIs involving opencv and databases in applications.

This book is suitable for beginners, students, engineers, and even researchers in a variety of disciplines. No advanced programming experience is needed, and only a few school-level

programming skills are needed. In the first chapter, you will learn to use several widgets in PyQt5: Display a welcome message; Use the Radio Button widget; Grouping radio buttons; Displays options in the form of a check box; and Display two groups of check boxes. In chapter two, you will learn to use the following topics: Using Signal / Slot Editor; Copy and place text from one Line Edit widget to another; Convert data types and make a simple calculator; Use the Spin Box widget; Use scrollbars and sliders; Using the Widget List; Select a number of list items from one Widget List and display them on another Widget List widget; Add items to the Widget List; Perform operations on the Widget List; Use the Combo Box widget; Displays data selected by the user from the Calendar Widget; Creating a hotel reservation application; and Display tabular data using Table Widgets. In chapter three, you will learn Basic MySQL statements including how to implement querying

data, sorting data, filtering data, joining tables, grouping data, subquerying data, and setting operators. Aside from learning basic SQL statements, you will also learn step by step how to develop stored procedures in MySQL. First, we introduce you to the stored procedure concept and discuss when you should use it. Then, we show you how to use the basic elements of the procedure code such as create procedure statement, if-else, case, loop, stored procedure's parameters. Chapter four will help you get started with MySQL Python connector. You will learn about the MySQL Python connector's features and how to install MySQL Connector/Python in your local system. Chapter five will help you understand the basics of MySQL data manipulation. In chapter six, you will create and configure database. In this chapter, you will create Suspect table in crime database. This table has eleven columns: suspect\_id (primary key), suspect\_name, birth\_date, case\_date, report\_date,

suspect\_status, arrest\_date, mother\_name, address, telephone, and photo. You will also create GUI to display, edit, insert, and delete for this table. In chapter seven, you will create a table with the name Feature\_Extraction, which has eight columns: feature\_id (primary key), suspect\_id (foreign key), feature1, feature2, feature3, feature4, feature5, and feature6. The six fields (except keys) will have a VARCHAR data type (200). You will also create GUI to display, edit, insert, and delete for this table. In chapter eight, you will create two tables, Police and Investigator. The Police table has six columns: police\_id (primary key), province, city, address, telephone, and photo. The Investigator table has eight columns: investigator\_id (primary key), investigator\_name, rank, birth\_date, gender, address, telephone, and photo. You will also create GUI to display, edit, insert, and delete for both tables. In chapter eight, you will create two tables, Victim and Case\_File. The Victim

table has nine columns: victim\_id (primary key), victim\_name, crime\_type, birth\_date, crime\_date, gender, address, telephone, and photo. The Case\_File table has seven columns: case\_file\_id (primary key), suspect\_id (foreign key), police\_id (foreign key), investigator\_id (foreign key), victim\_id (foreign key), status, and description. You will create GUI to display, edit, insert, and delete for both tables as well.

*OpenCV 4 with Python Blueprints* - Dr. Menua Gevorgyan 2020-03-20

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 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.

### **Cybernetics, Cognition and Machine Learning**

**Applications** - Vinit Kumar  
Gunjan 2022-09-15

This book includes the original, peer-reviewed research articles from the 3rd International Conference on Cybernetics, Cognition and Machine Learning Applications (ICCCMLA 2021), held in August 21 - 22, 2021, at Goa, India. It covers the latest research trends or developments in areas of data science, artificial intelligence, neural networks, cognitive science and machine learning applications, cyber physical systems and cybernetics.

**Mastering OpenCV 4 with Python** - Alberto Fernández Villán 2019-03-29

Create advanced applications with Python and OpenCV, exploring the potential of facial recognition, machine learning, deep learning, web computing and augmented reality. Key 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 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. Cyber Security in Intelligent Computing and Communications - Rajeev Agrawal 2022-03-11

This book looks at cyber security challenges with topical advancements in computational intelligence and communication technologies. This book includes invited peer-reviewed chapters on the emerging intelligent computing and communication technology research advancements, experimental outcomes, and cyber security practices, threats, and attacks with challenges. The book begins with a state-of-the-art survey and reviews of cyber security trends and issues. It further covers areas such as developments in intelligent computing and communication, smart healthcare, agriculture, transportation, online education, and many more real-life applications using IoT, big data, cloud computing, artificial intelligence, data science, and machine learning. This book is of interest to graduate/postgraduate students, researchers, and academicians. This book will be a valuable resource for practitioners and professionals working in smart city

visualization through secure and intelligent application design, development, deployment to foster digital revolution, and reliable integration of advanced computing and communication technologies with global significance.

### **Fluent OpenCV-Python GUI with SQL Server** - Vivian Siah

2019-09-21

This book is SQL Server version of our previous works. This book consists of a series of step-by-step tutorials for creating mini projects in integrating pyqt, python, opencv, and SQL Server database. By studying this book, you will understand how to program python GUIs involving opencv and databases in applications. This book is suitable for beginners, students, engineers, and even researchers in a variety of disciplines. No advanced programming experience is needed, and only a few school-level programming skills are needed. In the first chapter, you will learn to use several widgets in PyQt5: Display a

welcome message; Use the Radio Button widget; Grouping radio buttons; Displays options in the form of a check box; and Display two groups of check boxes. In chapter two, you will learn to use the following topics: Using Signal / Slot Editor; Copy and place text from one Line Edit widget to another; Convert data types and make a simple calculator; Use the Spin Box widget; Use scrollbars and sliders; Using the Widget List; Select a number of list items from one Widget List and display them on another Widget List widget; Add items to the Widget List; Perform operations on the Widget List; Use the Combo Box widget; Displays data selected by the user from the Calendar Widget; Creating a hotel reservation application; and Display tabular data using Table Widgets. In chapter three, you will create dan configure database. In this chapter, you will create Suspect table in crime database. This table has eleven columns: suspect\_id (primary key), suspect\_name, birth\_date,

case\_date, report\_date, suspect\_status, arrest\_date, mother\_name, address, telephone, and photo. You will also create GUI to display, edit, insert, and delete for this table. In chapter four, you will create a table with the name Feature\_Extraction, which has eight columns: feature\_id (primary key), suspect\_id (foreign key), feature1, feature2, feature3, feature4, feature5, and feature6. The six fields (except keys) will have VARBINARY(MAX) data type. You will also create GUI to display, edit, insert, and delete for this table. In chapter five, you will create two tables, Police and Investigator. The Police table has six columns: police\_id (primary key), province, city, address, telephone, and photo. The Investigator table has eight columns: investigator\_id (primary key), investigator\_name, rank, birth\_date, gender, address, telephone, and photo. You will also create GUI to display, edit, insert, and delete for both tables. In chapter six, you will

create two tables, Victim and Case\_File. The Victim table has nine columns: victim\_id (primary key), victim\_name, crime\_type, birth\_date, crime\_date, gender, address, telephone, and photo. The Case\_File table has seven columns: case\_file\_id (primary key), suspect\_id (foreign key), police\_id (foreign key), investigator\_id (foreign key), victim\_id (foreign key), status, and description. You will create GUI to display, edit, insert, and delete for both tables as well.

Image Processing and Computer Vision in iOS - Oge Marques 2020-11-23

This book presents the fundamentals of mobile visual computing in iOS development and provides directions for developers and researchers interested in developing iOS applications with image processing and computer vision capabilities. Presenting a technical overview of some of the tools, languages, libraries, frameworks, and APIs currently available for developing iOS applications Image Processing and Computer Vision in iOS

reveals the rich capabilities in image processing and computer vision. Its main goal is to provide a road map to what is currently available, and a path to successfully tackle this rather complex but highly rewarding task.

**ICT Analysis and Applications** - Simon Fong 2022-01-07

This book proposes new technologies and discusses future solutions for ICT design infrastructures, as reflected in high-quality papers presented at the 6th International Conference on ICT for Sustainable Development (ICT4SD 2021), held in Goa, India, on 5–6 August 2021. The book covers the topics such as big data and data mining, data fusion, IoT programming toolkits and frameworks, green communication systems and network, use of ICT in smart cities, sensor networks and embedded system, network and information security, wireless and optical networks, security, trust, and privacy, routing and control protocols, cognitive radio and networks, and

natural language processing. Bringing together experts from different countries, the book explores a range of central issues from an international perspective.

ROS Robotics By Example - Carol Fairchild 2017-11-30  
Learning how to build and program your own robots with the most popular open source robotics programming framework About This Book Get to know the fundamentals of ROS and apply its concepts to real examples Learn how to write robotics applications without getting bogged down in hardware problems Learn to implement best practices in ROS development Who This Book Is For This book is for robotic enthusiasts, researchers and professional robotics engineers who would like to build robot applications using ROS. It gives the robotics beginner and the ROS newbie an immensely practical introduction to robot building and robotics application coding. Basic knowledge of GNU/Linux and the ability to write simple applications is

assumed, but no robotics knowledge, practical or theoretical, is needed. What You Will Learn Control a robot without requiring a PhD in robotics Simulate and control a robot arm Control a flying robot Send your robot on an independent mission Learning how to control your own robots with external devices Program applications running on your robot Extend ROS itself Extend ROS with the MATLAB Robotics System Toolbox In Detail ROS is a robust robotics framework that works regardless of hardware architecture or hardware origin. It standardizes most layers of robotics functionality from device drivers to process control and message passing to software package management. But apart from just plain functionality, ROS is a great platform to learn about robotics itself and to simulate, as well as actually build, your first robots. This does not mean that ROS is a platform for students and other beginners; on the contrary, ROS is used all over the robotics industry to

implement flying, walking and diving robots, yet implementation is always straightforward, and never dependent on the hardware itself. ROS Robotics has been the standard introduction to ROS for potential professionals and hobbyists alike since the original edition came out; the second edition adds a gradual introduction to all the goodness available with the Kinetic Kame release. By providing you with step-by-step examples including manipulator arms and flying robots, the authors introduce you to the new features. The book is intensely practical, with space given to theory only when absolutely necessary. By the end of this book, you will have hands-on experience on controlling robots with the best possible framework. Style and approach ROS Robotics By Example, Second Edition gives the robotics beginner as well as the ROS newbie an immensely practical introduction to robot building and robotics application coding. ROS translates as "robot operating

system"; you will learn how to control a robot via devices and configuration files, but you will also learn how to write robot applications on the foundation of this operating system.

### **Robotics Process**

**Automation** - S. Mukherjee

This Robotics Process

Automation book describes the RPA platform for the future of business process automation.

More precisely this RPA book has tried to innumerate the followings: 1. RPA that brings speed to your digital

transformation. 2. RPA helps to

get rid of resource burden and it's consequences. 3. This

emphasizes Business process automation must be in the

hands forntline. 4. Only

Automation Anywhere

Enterprise combines consumer-like usability with enterprise-

class reliability, and security for RPA that empowers the

workforce to automate on their own, in real time. 5. What does

RPA mean for business?

Optimize labour investment

Increase capacity on demand

Increase speed and

productivity Maximize

availability Improve business process compliance Improve controls Improve auditability Enhance security deliver business intelligence Enable digital transformation Improve employee morale 6. Putting RPA to work and deploy your digital workforce in your businesses like insurance, finance, manufacturing and health care and also other. Deploy, manage and audit your Digital Workforce through a highly-intuitive RPA central command center, on-premise or in the cloud. This RPA book also enable you to learn more about AI and machine language also factory automation, safeguard your data, analyze and predict business performance, streamline your blended anywhere, big data ready for analytics. This book is made for BS/B,TECH and MS/M.TECH/MCA/MBA student who will have in-depth knowledge about RPA and its associated technologies falls in the same platform.

**Learning OpenCV** - Gary Bradski 2008-09-24

"This library is useful for

practitioners, and is an excellent tool for those entering the field: it is a set of computer vision algorithms that work as advertised."- William T. Freeman, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology Learning OpenCV puts you in the middle of the rapidly expanding field of computer vision. Written by the creators of the free open source OpenCV library, this book introduces you to computer vision and demonstrates how you can quickly build applications that enable computers to "see" and make decisions based on that data. Computer vision is everywhere-in security systems, manufacturing inspection systems, medical image analysis, Unmanned Aerial Vehicles, and more. It stitches Google maps and Google Earth together, checks the pixels on LCD screens, and makes sure the stitches in your shirt are sewn properly. OpenCV provides an easy-to-use computer vision framework

and a comprehensive library with more than 500 functions that can run vision code in real time. Learning OpenCV will teach any developer or hobbyist to use the framework quickly with the help of hands-on exercises in each chapter. This book includes: A thorough introduction to OpenCV  
Getting input from cameras  
Transforming images  
Segmenting images and shape matching  
Pattern recognition, including face detection  
Tracking and motion in 2 and 3 dimensions  
3D reconstruction from stereo vision  
Machine learning algorithms  
Getting machines to see is a challenging but entertaining goal. Whether you want to build simple or sophisticated vision applications, Learning OpenCV is the book you need to get started.

**Programming Computer Vision with Python** - Jan Erik Solem 2012-06-19

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 reconstructions 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

#### Machine Learning for OpenCV 4 - Aditya Sharma 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 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 open source 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 learn 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 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.

**OpenCV with Python Blueprints** - Michael Beyeler  
2015-10-19

Design and develop advanced computer vision projects using OpenCV with Python About This Book Program advanced computer vision applications in Python using different features of the OpenCV library Practical end-to-end project covering an important computer vision problem All projects in the book include a step-by-step guide to create computer vision applications Who This Book Is For This book is for intermediate users of OpenCV who aim to master their skills by developing advanced practical applications. Readers are expected to be familiar with OpenCV's concepts and Python libraries. Basic knowledge of Python programming is expected and assumed. What You Will Learn Generate real-time visual effects using different 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 for tracking arbitrary objects of interest Reconstruct a 3D real-world scene from 2D camera motion and common camera reprojection techniques Track visually salient objects by searching for and focusing on important regions of an image Detect faces using a cascade classifier and recognize emotional expressions in human faces using multi-layer perceptrons (MLPs) Recognize street signs using a multi-class adaptation of support vector machines (SVMs) Strengthen your OpenCV2 skills and learn how to use new OpenCV3 features In Detail 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. OpenCV has

C++/C, Python, and Java interfaces with support for Windows, Linux, Mac, iOS, and Android. Developers using OpenCV build applications to process visual data; this can include live streaming data from a device like a camera, such as photographs or videos. OpenCV offers extensive libraries with over 500 functions This book demonstrates how to develop a series of intermediate to advanced projects using OpenCV and Python, rather than teaching the core concepts of OpenCV in theoretical lessons. Instead, the working projects developed in this book teach the reader how to apply their theoretical knowledge to topics such as image manipulation, augmented reality, object tracking, 3D scene reconstruction, statistical learning, and object categorization. By the end of this book, readers will be OpenCV experts whose newly gained experience allows them to develop their own advanced computer vision applications.

Style and approach This book covers independent hands-on projects that teach important computer vision concepts like image processing and machine learning for OpenCV with multiple examples.

**Machine Vision and Mechatronics in Practice -**

John Billingsley 2015-01-12

The contributions for this book have been gathered over several years from conferences held in the series of Mechatronics and Machine Vision in Practice, the latest of which was held in Ankara, Turkey. The essential aspect is that they concern practical applications rather than the derivation of mere theory, though simulations and visualization are important components. The topics range from mining, with its heavy engineering, to the delicate machining of holes in the human skull or robots for surgery on human flesh. Mobile robots continue to be a hot topic, both from the need for navigation and for the task of stabilization of unmanned aerial vehicles. The swinging of

a spray rig is damped, while machine vision is used for the control of heating in an asphalt-laying machine. Manipulators are featured, both for general tasks and in the form of grasping fingers. A robot arm is proposed for adding to the mobility scooter of the elderly. Can EEG signals be a means to control a robot? Can face recognition be achieved in varying illumination?"

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

Vaidya 2018-09-26

Discover how CUDA allows OpenCV to handle complex and rapidly growing image data processing in computer and machine vision by accessing the power of GPU Key FeaturesExplore examples to leverage the GPU processing power with OpenCV and CUDAEnhance the performance of algorithms on embedded hardware platformsDiscover C++ and Python libraries for GPU accelerationBook Description Computer vision has been

revolutionizing a wide range of industries, and OpenCV is the most widely chosen tool for computer vision with its ability to work in multiple programming languages. Nowadays, in computer vision, there is a need to process large images in real time, which is difficult to handle for OpenCV on its own. This is where CUDA comes into the picture, allowing OpenCV to leverage powerful NVIDIA GPUs. This book provides a detailed overview of integrating OpenCV with CUDA for practical applications. To start with, you'll understand GPU programming with CUDA, an essential aspect for computer vision developers who have never worked with GPUs. You'll then move on to exploring OpenCV acceleration with GPUs and CUDA by walking through some practical examples. Once you have got to grips with the core concepts, you'll familiarize yourself with deploying OpenCV applications on NVIDIA Jetson TX1, which is popular for computer vision and deep learning applications.

The last chapters of the book explain PyCUDA, a Python library that leverages the power of CUDA and GPUs for accelerations and can be used by computer vision developers who use OpenCV with Python. By the end of this book, you'll have enhanced computer vision applications with the help of this book's hands-on approach. What you will learn

- Understand how to access GPU device properties and capabilities from CUDA programs
- Learn how to accelerate searching and sorting algorithms
- Detect shapes such as lines and circles in images
- Explore object tracking and detection with algorithms
- Process videos using different video analysis techniques in Jetson TX1
- Access GPU device properties from the PyCUDA program
- Understand how kernel execution works

Who this book is for This book is a go-to guide for you if you are a developer working with OpenCV and want to learn how to process more complex image data by exploiting GPU processing. A thorough understanding of computer

vision concepts and programming languages such as C++ or Python is expected.

Computer Vision: Concepts, Methodologies, Tools, and Applications - Management Association, Information Resources 2018-02-02

The fields of computer vision and image processing are constantly evolving as new research and applications in these areas emerge. Staying abreast of the most up-to-date developments in this field is necessary in order to promote further research and apply these developments in real-world settings. Computer Vision: Concepts, Methodologies, Tools, and Applications is an innovative reference source for the latest academic material on development of computers for gaining understanding about videos and digital images. Highlighting a range of topics, such as computational models, machine learning, and image processing, this multi-volume book is ideally designed for academicians, technology professionals, students, and

researchers interested in uncovering the latest innovations in the field.

Complete Virtual Reality and Augmented Reality Development with Unity - Jesse Glover 2019-04-17

Get close and comfortable with Unity and build applications that run on HoloLens, Daydream, and Oculus Rift Key Features Build fun augmented reality applications using ARKit, ARCore, and Vuforia Explore virtual reality by developing more than 10 engaging projects Learn how to integrate AR and VR concepts together in a single application Book Description Unity is the leading platform to develop mixed reality experiences because it provides a great pipeline for working with 3D assets. Using a practical and project-based approach, this Learning Path educates you about the specifics of AR and VR development using Unity 2018 and Unity 3D. You'll learn to integrate, animate, and overlay 3D objects on your camera feed, before moving on to implement sensor-based AR

applications. You'll explore various concepts by creating an AR application using Vuforia for both macOS and Windows for Android and iOS devices. Next, you'll learn how to develop VR applications that can be experienced with devices, such as Oculus and Vive. You'll also explore various tools for VR development: gaze-based versus hand controller input, world space UI canvases, locomotion and teleportation, timeline animation, and multiplayer networking. You'll learn the Unity 3D game engine via the interactive Unity Editor and C# programming. By the end of this Learning Path, you'll be fully equipped to develop rich, interactive mixed reality experiences using Unity. This Learning Path includes content from the following Packt products: Unity Virtual Reality Projects - Second Edition by Jonathan Linowes Unity 2018 Augmented Reality Projects by Jesse Glover What you will learn Create 3D scenes to learn about world space and scale Move around your scenes

using locomotion and teleportation Create filters or overlays that work with facial recognition software Interact with virtual objects using eye gaze, hand controllers, and user input events Design and build a VR storytelling animation with a soundtrack and timelines Create social VR experiences with Unity networking Who this book is for If you are a game developer familiar with 3D computer graphics and interested in building your own AR and VR games or applications, then this Learning Path is for you. Any prior experience in Unity and C# will be an advantage. In all, this course teaches you the tools and techniques to develop engaging mixed reality applications.

**OpenCV-Python with MariaDB for Absolute Beginners** - Vivian Siahaan  
2019-09-16

This book is MariaDB version of our previous works. This book consists of a series of step-by-step tutorials for creating mini projects in integrating pyqt, python,

opencv, and MariaDB database. By studying this book, you will understand how to program python GUIs involving opencv and databases in applications. This book is suitable for beginners, students, engineers, and even researchers in a variety of disciplines. No advanced programming experience is needed, and only a few school-level programming skills are needed. In the first chapter, you will learn to use several widgets in PyQt5: Display a welcome message; Use the Radio Button widget; Grouping radio buttons; Displays options in the form of a check box; and Display two groups of check boxes. In chapter two, you will learn to use the following topics: Using Signal / Slot Editor; Copy and place text from one Line Edit widget to another; Convert data types and make a simple calculator; Use the Spin Box widget; Use scrollbars and sliders; Using the Widget List; Select a number of list items from one Widget List and display them on another Widget List widget;

Add items to the Widget List; Perform operations on the Widget List; Use the Combo Box widget; Displays data selected by the user from the Calendar Widget; Creating a hotel reservation application; and Display tabular data using Table Widgets. In chapter three, you will create and configure database. In this chapter, you will create Suspect table in crime database. This table has eleven columns: suspect\_id (primary key), suspect\_name, birth\_date, case\_date, report\_date, suspect\_status, arrest\_date, mother\_name, address, telephone, and photo. You will also create GUI to display, edit, insert, and delete for this table. In chapter four, you will create a table with the name Feature\_Extraction, which has eight columns: feature\_id (primary key), suspect\_id (foreign key), feature1, feature2, feature3, feature4, feature5, and feature6. The six fields (except keys) will have a VARCHAR data type (200). You will also create GUI to display, edit, insert, and delete for this

table. In chapter five, you will create two tables, Police and Investigator. The Police table has six columns: police\_id (primary key), province, city, address, telephone, and photo. The Investigator table has eight columns: investigator\_id (primary key), investigator\_name, rank, birth\_date, gender, address, telephone, and photo. You will also create GUI to display, edit, insert, and delete for both tables. In chapter six, you will create two tables, Victim and Case\_File. The Victim table has nine columns: victim\_id (primary key), victim\_name, crime\_type, birth\_date, crime\_date, gender, address, telephone, and photo. The Case\_File table has seven columns: case\_file\_id (primary key), suspect\_id (foreign key), police\_id (foreign key), investigator\_id (foreign key), victim\_id (foreign key), status, and description. You will create GUI to display, edit, insert, and delete for both tables as well.

**Learning OpenCV 3** - Adrian Kaehler 2016-12-14

"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.

[Intelligent and Fuzzy Systems](#) - Cengiz Kahraman 2022-07-04

This book presents recent research in intelligent and fuzzy techniques on digital transformation and the new normal, the state to which economies, societies, etc. settle following a crisis bringing us to a new environment. Digital transformation and the new normal-appearing in many areas such as digital economy, digital finance, digital government, digital health, and digital education are the main scope of this book. The readers can benefit from this book for preparing for a digital "new normal" and maintaining a leadership position among competitors in both manufacturing and service companies. Digitizing an industrial company is a challenging process, which involves rethinking established

structures, processes, and steering mechanisms presented in this book. The intended readers are intelligent and fuzzy systems researchers, lecturers, M.Sc., and Ph.D. students studying digital transformation and new normal. The book covers fuzzy logic theory and applications, heuristics, and metaheuristics from optimization to machine learning, from quality management to risk management, making the book an excellent source for researchers.

*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 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.