

Blob Detection Using Opencv Python C Learn Opencv

The goal of this book is to familiarize readers with the latest research on, and recent advances in, the field of Informatics in Control, Automation and Robotics. It gathers a selection of papers highlighting the state-of-the-art in Intelligent Control Systems, Optimization, Robotics and Automation, Signal Processing, Sensors, Systems Modelling and Control. Combining theoretical aspects with practical applications, the book offers a well-balanced overview of the latest achievements, and will provide researchers, engineers and PhD students with both a vital update and new inspirations for their own research.

Gathering the Proceedings of the 2018 Intelligent Systems Conference (IntelliSys 2018), this book offers a remarkable collection of chapters covering a wide range of topics in intelligent systems and computing, and their real-world applications. The Conference attracted a total of 568 submissions from pioneering researchers, scientists, industrial engineers, and students from all around the world. These submissions underwent a double-blind peer review process, after which 194 (including 13 poster papers) were selected to be included in these proceedings. As intelligent systems continue to replace and sometimes outperform human intelligence in decision-making processes, they have made it possible to tackle many problems more effectively. This branching out of computational intelligence in several directions, and the use of intelligent systems in everyday applications, have created the need for such an international conference, which serves as a venue for reporting on cutting-edge innovations and developments. This book collects both theory and application-based chapters on all aspects of artificial intelligence, from classical to intelligent scope. Readers are sure to find the book both interesting and valuable, as it presents state-of-the-art intelligent methods and techniques for solving real-world problems, along with a vision of future research directions.

The Hitchhiker's Guide to Python takes the journeyman Pythonista to true expertise. More than any other language, Python was created with the philosophy of simplicity and parsimony. Now 25 years old, Python has become the primary or secondary language (after SQL) for many business users. With popularity comes diversity—and possibly dilution. This guide, collaboratively written by over a hundred members of the Python community, describes best practices currently used by package and application developers. Unlike other books for this audience, The Hitchhiker's Guide is light on reusable code and heavier on design philosophy, directing the reader to excellent sources that already exist.

In this book, you will learn how to use NumPy, Pandas, OpenCV, Scikit-Learn and other libraries to how to plot graph and to process digital image. Then, you will learn how to classify features using Perceptron, Adaline, Logistic Regression (LR), Support Vector Machine (SVM), Decision Tree (DT), Random Forest (RF), and K-Nearest Neighbor (KNN) models.

You will also learn how to extract features using Principal Component Analysis (PCA), Linear Discriminant Analysis (LDA), Kernel Principal Component Analysis (KPCA) algorithms and use them in machine learning. In Chapter 1, you will learn: Tutorial Steps To Create A Simple GUI Application, Tutorial Steps to Use Radio Button, Tutorial Steps to Group Radio Buttons, Tutorial Steps to Use CheckBox Widget, Tutorial Steps to Use Two CheckBox Groups, Tutorial Steps to Understand Signals and Slots, Tutorial Steps to Convert Data Types, Tutorial Steps to Use Spin Box Widget, Tutorial Steps to Use ScrollBar and Slider, Tutorial Steps to Use List Widget, Tutorial Steps to Select Multiple List Items in One List Widget and Display It in Another List Widget, Tutorial Steps to Insert Item into List Widget, Tutorial Steps to Use Operations on Widget List, Tutorial Steps to Use Combo Box, Tutorial Steps to Use Calendar Widget and Date Edit, and Tutorial Steps to Use Table Widget. In Chapter 2, you will learn: Tutorial Steps To Create A Simple Line Graph, Tutorial Steps To Create A Simple Line Graph in Python GUI, Tutorial Steps To Create A Simple Line Graph in Python GUI: Part 2, Tutorial Steps To Create Two or More Graphs in the Same Axis, Tutorial Steps To Create Two Axes in One Canvas, Tutorial Steps To Use Two Widgets, Tutorial Steps To Use Two Widgets, Each of Which Has Two Axes, Tutorial Steps To Use Axes With Certain Opacity Levels, Tutorial Steps To Choose Line Color From Combo Box, Tutorial Steps To Calculate Fast Fourier Transform, Tutorial Steps To Create GUI For FFT, Tutorial Steps To Create GUI For FFT With Some Other Input Signals, Tutorial Steps To Create GUI For Noisy Signal, Tutorial Steps To Create GUI For Noisy Signal Filtering, and Tutorial Steps To Create GUI For Wav Signal Filtering. In Chapter 3, you will learn: Tutorial Steps To Convert RGB Image Into Grayscale, Tutorial Steps To Convert RGB Image Into YUV Image, Tutorial Steps To Convert RGB Image Into HSV Image, Tutorial Steps To Filter Image, Tutorial Steps To Display Image Histogram, Tutorial Steps To Display Filtered Image Histogram, Tutorial Steps To Filter Image With CheckBoxes, Tutorial Steps To Implement Image Thresholding, and Tutorial Steps To Implement Adaptive Image Thresholding. You will also learn: Tutorial Steps To Generate And Display Noisy Image, Tutorial Steps To Implement Edge Detection On Image, Tutorial Steps To Implement Image Segmentation Using Multiple Thresholding and K-Means Algorithm, Tutorial Steps To Implement Image Denoising, Tutorial Steps To Detect Face, Eye, and Mouth Using Haar Cascades, Tutorial Steps To Detect Face Using Haar Cascades with PyQt, Tutorial Steps To Detect Eye, and Mouth Using Haar Cascades with PyQt, Tutorial Steps To Extract Detected Objects, Tutorial Steps To Detect Image Features Using Harris Corner Detection, Tutorial Steps To Detect Image Features Using Shi-Tomasi Corner Detection, Tutorial Steps To Detect Features Using Scale-Invariant Feature Transform (SIFT), and Tutorial Steps To Detect Features Using Features from Accelerated Segment Test (FAST). In Chapter 4, In this tutorial, you will learn how to use Pandas, NumPy and other libraries to perform simple classification using perceptron and Adaline (adaptive linear neuron). The dataset used is Iris dataset directly from the UCI

Machine Learning Repository. You will learn: Tutorial Steps To Implement Perceptron, Tutorial Steps To Implement Perceptron with PyQt, Tutorial Steps To Implement Adaline (ADaptive LInear NEuron), and Tutorial Steps To Implement Adaline with PyQt. In Chapter 5, you will learn how to use the scikit-learn machine learning library, which provides a wide variety of machine learning algorithms via a user-friendly Python API and to perform classification using perceptron, Adaline (adaptive linear neuron), and other models. The dataset used is Iris dataset directly from the UCI Machine Learning Repository. You will learn: Tutorial Steps To Implement Perceptron Using Scikit-Learn, Tutorial Steps To Implement Perceptron Using Scikit-Learn with PyQt, Tutorial Steps To Implement Logistic Regression Model, Tutorial Steps To Implement Logistic Regression Model with PyQt, Tutorial Steps To Implement Logistic Regression Model Using Scikit-Learn with PyQt, Tutorial Steps To Implement Support Vector Machine (SVM) Using Scikit-Learn, Tutorial Steps To Implement Decision Tree (DT) Using Scikit-Learn, Tutorial Steps To Implement Random Forest (RF) Using Scikit-Learn, and Tutorial Steps To Implement K-Nearest Neighbor (KNN) Using Scikit-Learn. In Chapter 6, you will learn how to use Pandas, NumPy, Scikit-Learn, and other libraries to implement different approaches for reducing the dimensionality of a dataset using different feature selection techniques. You will learn about three fundamental techniques that will help us to summarize the information content of a dataset by transforming it onto a new feature subspace of lower dimensionality than the original one. Data compression is an important topic in machine learning, and it helps us to store and analyze the increasing amounts of data that are produced and collected in the modern age of technology. You will learn the following topics: Principal Component Analysis (PCA) for unsupervised data compression, Linear Discriminant Analysis (LDA) as a supervised dimensionality reduction technique for maximizing class separability, Nonlinear dimensionality reduction via Kernel Principal Component Analysis (KPCA). You will learn: 6.1 Tutorial Steps To Implement Principal Component Analysis (PCA), Tutorial Steps To Implement Principal Component Analysis (PCA) Using Scikit-Learn, Tutorial Steps To Implement Principal Component Analysis (PCA) Using Scikit-Learn with PyQt, Tutorial Steps To Implement Linear Discriminant Analysis (LDA), Tutorial Steps To Implement Linear Discriminant Analysis (LDA) with Scikit-Learn, Tutorial Steps To Implement Linear Discriminant Analysis (LDA) Using Scikit-Learn with PyQt, Tutorial Steps To Implement Kernel Principal Component Analysis (KPCA) Using Scikit-Learn, and Tutorial Steps To Implement Kernel Principal Component Analysis (KPCA) Using Scikit-Learn with PyQt. In Chapter 7, you will learn how to use Keras, Scikit-Learn, Pandas, NumPy and other libraries to perform prediction on handwritten digits using MNIST dataset. You will learn: Tutorial Steps To Load MNIST Dataset, Tutorial Steps To Load MNIST Dataset with PyQt, Tutorial Steps To Implement Perceptron With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Perceptron With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Perceptron With

KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Logistic Regression (LR) Model With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Logistic Regression (LR) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Logistic Regression (LR) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement , Tutorial Steps To Implement Support Vector Machine (SVM) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Support Vector Machine (SVM) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Decision Tree (DT) Model With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Decision Tree (DT) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Decision Tree (DT) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Random Forest (RF) Model With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Random Forest (RF) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Random Forest (RF) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement K-Nearest Neighbor (KNN) Model With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement K-Nearest Neighbor (KNN) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, and Tutorial Steps To Implement K-Nearest Neighbor (KNN) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt.

This book constitutes the thoroughly refereed proceedings of the First Ibero-American Congress, ICSC-CITIES 2018, held in Soria, Spain, in May 2018. The 15 full papers presented were carefully reviewed and selected from 101 submissions. The papers cover wide research fields including smart cities, energy efficiency and sustainability, infrastructures, smart mobility, intelligent transportation systems, Internet of Things, governance and citizenship.

This book presents the refereed proceedings of the 5th International Conference on Advanced Machine Learning Technologies and Applications (AMLTA 2020), held at Manipal University Jaipur, India, on February 13 – 15, 2019, and organized in collaboration with the Scientific Research Group in Egypt (SRGE). The papers cover current research in machine learning, big data, Internet of Things, biomedical engineering, fuzzy logic and security, as well as intelligence swarms and optimization.

The four LNCS volume set 9175-9178 constitutes the refereed proceedings of the 9th International Conference on Learning and Collaboration Technologies, UAHCI 2015, held as part of the 17th International Conference on Human-Computer Interaction, HCII 2015, in Los Angeles, CA, USA in August 2015, jointly with 15 other thematically similar conferences. The total of 1462 papers and 246 posters presented at the HCII 2015 conferences were carefully reviewed

and selected from 4843 submissions. These papers of the four volume set address the following major topics: LNCS 9175, Universal Access in Human-Computer Interaction: Access to today's technologies (Part I), addressing the following major topics: LNCS 9175: Design and evaluation methods and tools for universal access, universal access to the web, universal access to mobile interaction, universal access to information, communication and media. LNCS 9176: Gesture-based interaction, touch-based and haptic Interaction, visual and multisensory experience, sign language technologies, and smart and assistive environments LNCS 9177: Universal Access to Education, universal access to health applications and services, games for learning and therapy and cognitive disabilities and cognitive support and LNCS 9178: Universal access to culture, orientation, navigation and driving, accessible security and voting, universal access to the built environment and ergonomics and universal access.

The development and management of technologies and operations are key to the success of all types of manufacturing business. This book presents the proceedings of the 17th International Conference on Manufacturing Research (ICMR 2019), held in Belfast, UK, on 10 – 12 September 2019. ICMR has been the UK's main manufacturing research conference for 34 years and an international conference since 2003. It brings together researchers, academics and industrialists to share their vision, knowledge and experience and discuss emerging trends and new challenges in manufacturing research. The conference theme of ICMR2019 was smart manufacturing, and the book includes the 82 papers presented at the conference (representing an acceptance rate of 69%). These have been divided into 13 parts, which cover topics ranging from robot automation and machining processes, additive manufacturing, composite manufacturing, design methods, to information management, quality control, production optimization and product lifecycle management. Providing an overview of current trends and developments, the book will be of interest to researchers and engineers in the relevant area of manufacturing processes, design and production management.

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Advanced Machine Learning Technologies and Applications Proceedings of AMLTA 2020 Springer Nature

This book showcases cutting-edge research papers from the 7th International Conference on Research into Design (ICoRD 2019) – the largest in India in this area – written by eminent researchers from across the world on design processes, technologies, methods and tools, and their impact on innovation, for supporting design for a connected world. The theme of ICoRD'19 has been "Design for a Connected World". While Design traditionally focused on developing products that worked on their own, an emerging trend is to have products with a smart layer that makes them context aware and responsive, individually and collectively, through collaboration with other physical and digital objects with which these are connected. The papers in this volume explore these themes, and their key focus is connectivity: how do

products and their development change in a connected world? The volume will be of interest to researchers, professionals and entrepreneurs working in the areas on industrial design, manufacturing, consumer goods, and industrial management who are interested in the use of emerging technologies such as IOT, IIOT, Digital Twins, I4.0 etc. as well as new and emerging methods and tools to design new products, systems and services.

Explore the mathematical computations and algorithms for image processing using popular Python tools and frameworks.

Key Features Practical coverage of every image processing task with popular Python libraries Includes topics such as pseudo-coloring, noise smoothing, computing image descriptors Covers popular machine learning and deep learning techniques for complex image processing tasks **Book Description** Image processing plays an important role in our daily lives with various applications such as in social media (face detection), medical imaging (X-ray, CT-scan), security (fingerprint recognition) to robotics & space. This book will touch the core of image processing, from concepts to code using Python. The book will start from the classical image processing techniques and explore the evolution of image processing algorithms up to the recent advances in image processing or computer vision with deep learning. We will learn how to use image processing libraries such as PIL, scikit-mage, and scipy ndimage in Python. This book will enable us to write code snippets in Python 3 and quickly implement complex image processing algorithms such as image enhancement, filtering, segmentation, object detection, and classification. We will be able to use machine learning models using the scikit-learn library and later explore deep CNN, such as VGG-19 with Keras, and we will also use an end-to-end deep learning model called YOLO for object detection. We will also cover a few advanced problems, such as image inpainting, gradient blending, variational denoising, seam carving, quilting, and morphing. By the end of this book, we will have learned to implement various algorithms for efficient image processing. **What you will learn** Perform basic data pre-processing tasks such as image denoising and spatial filtering in Python Implement Fast Fourier Transform (FFT) and Frequency domain filters (e.g., Weiner) in Python Do morphological image processing and segment images with different algorithms Learn techniques to extract features from images and match images Write Python code to implement supervised / unsupervised machine learning algorithms for image processing Use deep learning models for image classification, segmentation, object detection and style transfer **Who this book is for** This book is for Computer Vision Engineers, and machine learning developers who are good with Python programming and want to explore details and complexities of image processing. No prior knowledge of the image processing techniques is expected.

Setelah manusia berhasil menciptakan pesawat terbang dan helikopter, munculah drone yang merupakan hasil dari kecanggihan teknologi kecerdasan buatan dan teknologi sistem kendali pada pesawat terbang. Pesawat Udara Tanpa Awak (PTA) atau istilah lainnya yaitu Unmanned Aerial Vehicle (UAV) adalah pesawat yang dapat terbang tanpa

dikendalikan secara langsung oleh manusia. UAV sangat penting peranannya dalam pertahanan keamanan maupun dalam berbagai bidang lainnya. Hal tersebut dikatakan penting karena banyak misi yang dapat dilakukan menggunakan UAV. Misi-misi tersebut antara lain membantu dalam melakukan serangan udara, menjaga perbatasan, melakukan pengintaian markas musuh, melakukan pengawalan, konservasi daerah hutan lindung, pengiriman obat-obatan atau mendeteksi sumber asap akibat kebakaran hutan. Selain itu, pesawat UAV atau yang kemudian lebih dikenal sebagai drone juga ditujukan untuk misi perekaman foto dan video dari udara, pengawasan (surveillance). Drone juga memiliki kemampuan menjangkau area sempit/terbatas dimana pesawat lain tidak mampu menjangkaunya. Di masa depan, drone digunakan sebagai pengangkut penumpang dan pengirim barang pada bidang ecommerce. Dalam Buku Desain dan Pemrograman Drone Cerdas ini penulis menghadirkan materi pemrograman drone yang diperdalam dengan konsep arsitektur drone, pemrograman aplikatif hingga deteksi objek untuk menghasilkan sistem drone yang handal untuk masa depan. Buku ini diharapkan dapat menjadi buku pegangan utama mata kuliah Teknologi UAV/Drone serta Computer Vision di seluruh jurusan Teknik Informatika, Sistem Komputer, Pertanian, Teknik Elektro dan MIPA di tanah air, serta dapat digunakan bagi para praktisi pengembang teknologi drone di seluruh Indonesia.

The Environmental Noise Directive (END) requires that a five-year updating of noise maps is carried out to check and report on the changes that have occurred during the reference period. The updating process is usually achieved using a standardized approach consisting of collecting and processing information through acoustic models to produce the updated noise maps. This procedure is time consuming and costly, and has a significant impact on the financial statement of the authorities responsible for providing the maps. Furthermore, the END requires that easy-to-read noise maps are made available to the public to provide information on noise levels and the subsequent actions to be undertaken by local and central authorities to reduce noise impacts. In order to update the noise maps more easily and in a more effective way, it is convenient to design an integrated system incorporating real-time noise measurement and signal processing to identify and analyze the noise sources present in the mapping area (e.g., road traffic noise, leisure noise, etc.) as well as to automatically generate and present the corresponding noise maps. This wireless acoustic sensor network design requires transversal knowledge, from accurate hardware design for acoustic sensors to network structure design and management of the information with signal processing to identify the origin of the measured noise and graphical user interface application design to present the results to end users. This book is collection in which several views of methodology and technologies required for the development of an efficient wireless acoustic sensor network from the first stages of its design to the tests conducted during deployment, its final performance, and possible subsequent implications for authorities in terms of the definition of policies. Contributions include several LIFE and H2020

projects aimed at the design and implementation of intelligent acoustic sensor networks with a focus on the publication of good practices for the design and deployment of intelligent networks in other locations.

BOOK 1: LEARN FROM SCRATCH MACHINE LEARNING WITH PYTHON GUI In this book, you will learn how to use NumPy, Pandas, OpenCV, Scikit-Learn and other libraries to how to plot graph and to process digital image. Then, you will learn how to classify features using Perceptron, Adaline, Logistic Regression (LR), Support Vector Machine (SVM), Decision Tree (DT), Random Forest (RF), and K-Nearest Neighbor (KNN) models. You will also learn how to extract features using Principal Component Analysis (PCA), Linear Discriminant Analysis (LDA), Kernel Principal Component Analysis (KPCA) algorithms and use them in machine learning. In Chapter 1, you will learn: Tutorial Steps To Create A Simple GUI Application, Tutorial Steps to Use Radio Button, Tutorial Steps to Group Radio Buttons, Tutorial Steps to Use CheckBox Widget, Tutorial Steps to Use Two CheckBox Groups, Tutorial Steps to Understand Signals and Slots, Tutorial Steps to Convert Data Types, Tutorial Steps to Use Spin Box Widget, Tutorial Steps to Use ScrollBar and Slider, Tutorial Steps to Use List Widget, Tutorial Steps to Select Multiple List Items in One List Widget and Display It in Another List Widget, Tutorial Steps to Insert Item into List Widget, Tutorial Steps to Use Operations on Widget List, Tutorial Steps to Use Combo Box, Tutorial Steps to Use Calendar Widget and Date Edit, and Tutorial Steps to Use Table Widget. In Chapter 2, you will learn: Tutorial Steps To Create A Simple Line Graph, Tutorial Steps To Create A Simple Line Graph in Python GUI, Tutorial Steps To Create A Simple Line Graph in Python GUI: Part 2, Tutorial Steps To Create Two or More Graphs in the Same Axis, Tutorial Steps To Create Two Axes in One Canvas, Tutorial Steps To Use Two Widgets, Tutorial Steps To Use Two Widgets, Each of Which Has Two Axes, Tutorial Steps To Use Axes With Certain Opacity Levels, Tutorial Steps To Choose Line Color From Combo Box, Tutorial Steps To Calculate Fast Fourier Transform, Tutorial Steps To Create GUI For FFT, Tutorial Steps To Create GUI For FFT With Some Other Input Signals, Tutorial Steps To Create GUI For Noisy Signal, Tutorial Steps To Create GUI For Noisy Signal Filtering, and Tutorial Steps To Create GUI For Wav Signal Filtering. In Chapter 3, you will learn: Tutorial Steps To Convert RGB Image Into Grayscale, Tutorial Steps To Convert RGB Image Into YUV Image, Tutorial Steps To Convert RGB Image Into HSV Image, Tutorial Steps To Filter Image, Tutorial Steps To Display Image Histogram, Tutorial Steps To Display Filtered Image Histogram, Tutorial Steps To Filter Image With CheckBoxes, Tutorial Steps To Implement Image Thresholding, and Tutorial Steps To Implement Adaptive Image Thresholding. You will also learn: Tutorial Steps To Generate And Display Noisy Image, Tutorial Steps To Implement Edge Detection On Image, Tutorial Steps To Implement Image Segmentation Using Multiple Thresholding and K-Means Algorithm, Tutorial Steps To Implement Image Denoising, Tutorial Steps To Detect Face, Eye, and Mouth Using Haar Cascades, Tutorial Steps To Detect Face Using Haar Cascades with PyQt, Tutorial Steps To

Detect Eye, and Mouth Using Haar Cascades with PyQt, Tutorial Steps To Extract Detected Objects, Tutorial Steps To Detect Image Features Using Harris Corner Detection, Tutorial Steps To Detect Image Features Using Shi-Tomasi Corner Detection, Tutorial Steps To Detect Features Using Scale-Invariant Feature Transform (SIFT), and Tutorial Steps To Detect Features Using Features from Accelerated Segment Test (FAST). In Chapter 4, In this tutorial, you will learn how to use Pandas, NumPy and other libraries to perform simple classification using perceptron and Adaline (adaptive linear neuron). The dataset used is Iris dataset directly from the UCI Machine Learning Repository. You will learn: Tutorial Steps To Implement Perceptron, Tutorial Steps To Implement Perceptron with PyQt, Tutorial Steps To Implement Adaline (ADaptive LInear NEuron), and Tutorial Steps To Implement Adaline with PyQt. In Chapter 5, you will learn how to use the scikit-learn machine learning library, which provides a wide variety of machine learning algorithms via a user-friendly Python API and to perform classification using perceptron, Adaline (adaptive linear neuron), and other models. The dataset used is Iris dataset directly from the UCI Machine Learning Repository. You will learn: Tutorial Steps To Implement Perceptron Using Scikit-Learn, Tutorial Steps To Implement Perceptron Using Scikit-Learn with PyQt, Tutorial Steps To Implement Logistic Regression Model, Tutorial Steps To Implement Logistic Regression Model with PyQt, Tutorial Steps To Implement Logistic Regression Model Using Scikit-Learn with PyQt, Tutorial Steps To Implement Support Vector Machine (SVM) Using Scikit-Learn, Tutorial Steps To Implement Decision Tree (DT) Using Scikit-Learn, Tutorial Steps To Implement Random Forest (RF) Using Scikit-Learn, and Tutorial Steps To Implement K-Nearest Neighbor (KNN) Using Scikit-Learn. In Chapter 6, you will learn how to use Pandas, NumPy, Scikit-Learn, and other libraries to implement different approaches for reducing the dimensionality of a dataset using different feature selection techniques. You will learn about three fundamental techniques that will help us to summarize the information content of a dataset by transforming it onto a new feature subspace of lower dimensionality than the original one. Data compression is an important topic in machine learning, and it helps us to store and analyze the increasing amounts of data that are produced and collected in the modern age of technology. You will learn the following topics: Principal Component Analysis (PCA) for unsupervised data compression, Linear Discriminant Analysis (LDA) as a supervised dimensionality reduction technique for maximizing class separability, Nonlinear dimensionality reduction via Kernel Principal Component Analysis (KPCA). You will learn: Tutorial Steps To Implement Principal Component Analysis (PCA), Tutorial Steps To Implement Principal Component Analysis (PCA) Using Scikit-Learn, Tutorial Steps To Implement Principal Component Analysis (PCA) Using Scikit-Learn with PyQt, Tutorial Steps To Implement Linear Discriminant Analysis (LDA), Tutorial Steps To Implement Linear Discriminant Analysis (LDA) with Scikit-Learn, Tutorial Steps To Implement Linear Discriminant Analysis (LDA) Using Scikit-Learn with PyQt, Tutorial Steps To Implement Kernel Principal Component

Analysis (KPCA) Using Scikit-Learn, and Tutorial Steps To Implement Kernel Principal Component Analysis (KPCA) Using Scikit-Learn with PyQt. In Chapter 7, you will learn how to use Keras, Scikit-Learn, Pandas, NumPy and other libraries to perform prediction on handwritten digits using MNIST dataset. You will learn: Tutorial Steps To Load MNIST Dataset, Tutorial Steps To Load MNIST Dataset with PyQt, Tutorial Steps To Implement Perceptron With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Perceptron With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Perceptron With KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Logistic Regression (LR) Model With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Logistic Regression (LR) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Logistic Regression (LR) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement , Tutorial Steps To Implement Support Vector Machine (SVM) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Support Vector Machine (SVM) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Decision Tree (DT) Model With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Decision Tree (DT) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Decision Tree (DT) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Random Forest (RF) Model With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Random Forest (RF) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement Random Forest (RF) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement K-Nearest Neighbor (KNN) Model With PCA Feature Extractor on MNIST Dataset Using PyQt, Tutorial Steps To Implement K-Nearest Neighbor (KNN) Model With LDA Feature Extractor on MNIST Dataset Using PyQt, and Tutorial Steps To Implement K-Nearest Neighbor (KNN) Model With KPCA Feature Extractor on MNIST Dataset Using PyQt. BOOK 2: THE PRACTICAL GUIDES ON DEEP LEARNING USING SCIKIT-LEARN, KERAS, AND TENSORFLOW WITH PYTHON GUI In this book, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to implement deep learning on recognizing traffic signs using GTSRB dataset, detecting brain tumor using Brain Image MRI dataset, classifying gender, and recognizing facial expression using FER2013 dataset In Chapter 1, you will learn to create GUI applications to display line graph using PyQt. You will also learn how to display image and its histogram. In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, Pandas, NumPy and other libraries to perform prediction on handwritten digits using MNIST dataset with PyQt. You will build a GUI application for this purpose. In Chapter 3, you will learn how to perform recognizing traffic signs using GTSRB dataset from Kaggle. There are several different types of

traffic signs like speed limits, no entry, traffic signals, turn left or right, children crossing, no passing of heavy vehicles, etc. Traffic signs classification is the process of identifying which class a traffic sign belongs to. In this Python project, you will build a deep neural network model that can classify traffic signs in image into different categories. With this model, you will be able to read and understand traffic signs which are a very important task for all autonomous vehicles. You will build a GUI application for this purpose. In Chapter 4, you will learn how to perform detecting brain tumor using Brain Image MRI dataset provided by Kaggle (<https://www.kaggle.com/navoneel/brain-mri-images-for-brain-tumor-detection>) using CNN model. You will build a GUI application for this purpose. In Chapter 5, you will learn how to perform classifying gender using dataset provided by Kaggle (<https://www.kaggle.com/cashutosh/gender-classification-dataset>) using MobileNetV2 and CNN models. You will build a GUI application for this purpose. In Chapter 6, you will learn how to perform recognizing facial expression using FER2013 dataset provided by Kaggle (<https://www.kaggle.com/nicolejyt/facialexpressionrecognition>) using CNN model. You will also build a GUI application for this purpose.

BOOK 3: STEP BY STEP TUTORIALS ON DEEP LEARNING USING SCIKIT-LEARN, KERAS, AND TENSORFLOW WITH PYTHON GUI

In this book, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to implement deep learning on classifying fruits, classifying cats/dogs, detecting furnitures, and classifying fashion. In Chapter 1, you will learn to create GUI applications to display line graph using PyQt. You will also learn how to display image and its histogram. Then, you will learn how to use OpenCV, NumPy, and other libraries to perform feature extraction with Python GUI (PyQt). The feature detection techniques used in this chapter are Harris Corner Detection, Shi-Tomasi Corner Detector, and Scale-Invariant Feature Transform (SIFT). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform classifying fruits using Fruits 360 dataset provided by Kaggle (<https://www.kaggle.com/moltean/fruits/code>) using Transfer Learning and CNN models. You will build a GUI application for this purpose. In Chapter 3, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform classifying cats/dogs using dataset provided by Kaggle (<https://www.kaggle.com/chetankv/dogs-cats-images>) using Using CNN with Data Generator. You will build a GUI application for this purpose. In Chapter 4, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting furnitures using Furniture Detector dataset provided by Kaggle (<https://www.kaggle.com/akkithetechie/furniture-detector>) using VGG16 model. You will build a GUI application for this purpose. In Chapter 5, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform classifying fashion using Fashion MNIST dataset provided by Kaggle (<https://www.kaggle.com/zalando-research/fashionmnist/code>) using CNN model. You will build a GUI application for this

purpose. BOOK 4: Project-Based Approach On DEEP LEARNING Using Scikit-Learn, Keras, And TensorFlow with Python GUI In this book, implement deep learning on detecting vehicle license plates, recognizing sign language, and detecting surface crack using TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries. In Chapter 1, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting vehicle license plates using Car License Plate Detection dataset provided by Kaggle (<https://www.kaggle.com/andrewmvd/car-plate-detection/download>). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform sign language recognition using Sign Language Digits Dataset provided by Kaggle (<https://www.kaggle.com/ardamavi/sign-language-digits-dataset/download>). In Chapter 3, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting surface crack using Surface Crack Detection provided by Kaggle (<https://www.kaggle.com/arunrk7/surface-crack-detection/download>). BOOK 5: Hands-On Guide To IMAGE CLASSIFICATION Using Scikit-Learn, Keras, And TensorFlow with PYTHON GUI In this book, implement deep learning-based image classification on detecting face mask, classifying weather, and recognizing flower using TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries. In Chapter 1, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting face mask using Face Mask Detection Dataset provided by Kaggle (<https://www.kaggle.com/omkargurav/face-mask-dataset/download>). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to classify weather using Multi-class Weather Dataset provided by Kaggle (<https://www.kaggle.com/pratik2901/multiclass-weather-dataset/download>). In Chapter 3, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to recognize flower using Flowers Recognition dataset provided by Kaggle (<https://www.kaggle.com/alxmamaev/flowers-recognition/download>). BOOK 6: Step by Step Tutorial IMAGE CLASSIFICATION Using Scikit-Learn, Keras, And TensorFlow with PYTHON GUI In this book, implement deep learning-based image classification on classifying monkey species, recognizing rock, paper, and scissor, and classify airplane, car, and ship using TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries. In Chapter 1, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to classify monkey species using 10 Monkey Species dataset provided by Kaggle (<https://www.kaggle.com/slothkong/10-monkey-species/download>). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to recognize rock, paper, and scissor using 10 Monkey Species dataset provided by Kaggle (<https://www.kaggle.com/sanikamal/rock-paper-scissors->

The book gathers papers addressing state-of-the-art research in all areas of Information and Communication Technologies and their applications in intelligent computing, cloud storage, data mining and software analysis. It presents the outcomes of the third International Conference on Information and Communication Technology for Intelligent Systems, which was held on April 6–7, 2018, in Ahmedabad, India. Divided into two volumes, the book discusses the fundamentals of various data analytics and algorithms, making it a valuable resource for researchers' future studies. This book features research work presented at the 2nd International Conference on Data Engineering and Communication Technology (ICDECT) held on December 15–16, 2017 at Symbiosis International University, Pune, Maharashtra, India. It discusses advanced, multi-disciplinary research into smart computing, information systems and electronic systems, focusing on innovation paradigms in system knowledge, intelligence and sustainability that can be applied to provide feasible solutions to varied problems in society, the environment and industry. It also addresses the deployment of emerging computational and knowledge transfer approaches, optimizing solutions in a variety of disciplines of computer science and electronics engineering. 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.

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The phase separation of incompatible liquids has been a topic of significant importance in chemical and industrial engineering for many years. Well-understood examples of this phenomenon include the phase separation of oil with water and the phase separation of non-polar organic solvents with water. Similar behavior is observed when aqueous solutions of two or more incompatible polymers or polymers and salts are mixed. In these mixtures (referred to as aqueous two-phase systems), the separated phases are composed mostly of water. Aqueous two-phase systems have been used extensively for the extraction of high-value biological products from mixtures of biological materials. In recent years, aqueous two-phase systems have also found increased use as materials for streamlining and improving the capabilities of cell and molecular assays, and for the design of advanced cell culture systems. Similar behavior of biological materials in living systems has also been observed, with emerging roles in cell physiology.

This book gathers selected high-impact articles from the 1st International Conference on Data Science, Machine Learning & Applications 2019. It highlights the latest developments in the areas of Artificial Intelligence, Machine Learning, Soft Computing, Human–Computer Interaction and various data science & machine learning applications. It brings together scientists and researchers from different universities and industries around the world to showcase a broad range of perspectives, practices and technical expertise.

OpenCV 4 for Secret Agents is an updated edition of the book that introduced thousands of developers to cat face detection, real-time Eulerian video magnification, and other scintillating topics in computer vision. Now, Python 3 and Android Studio are supported. With an applied approach and a love of storytelling, the author presents projects ...

BUKU 1: Konsep dan Implementasi Pemrograman Python Buku ini merupakan buku teks pemrograman komputer menggunakan Python yang difokuskan untuk pembelajaran efektif. Sengaja dirancang untuk pelbagai tingkat ketertarikan dan kemampuan pembelajar, buku ini cocok untuk siswa SMA/SMK, mahasiswa, insinyur, dan bahkan peneliti dalam berbagai disiplin ilmu. Tidak ada pengalaman pemrograman yang diperlukan, dan hanya sedikit kemampun aljabar tingkat sekolah menengah atas yang diperlukan. Buku ini memang dirancang untuk mengambil rute tradisional, dengan lebih dahulu menekankan sintaksis-sintaksis dasar, struktur-struktur kendali, fungsi, dekomposisi prosedural, dan struktur data built-in seperti list, set, dan kamus (dictionary). Panduan langkah-demi-langkah di dalamnya diharapkan bisa membantu kepercayaan diri pembaca untuk menjadi programer yang bisa menyelesaikan permasalahan-permasalahan pemrograman. Sejumlah contoh disediakan untuk mendemonstrasikan bagaimana menerapkan konsep-konsep yang telah disajikan terhadap sejumlah tantangan pemrograman. Pada Bab 1, Anda akan diajari mengenal IDE Spyder untuk memprogram Python dan mengetahui sintaksis dasar dari program sederhana Python. Pada Bab 2, Anda akan belajar: Mendefinisikan dan menggunakan variabel dan konstanta; Memahami sejumlah watak dan

keterbatasan bilangan integer (bilangan bulat) dan titik-mengambang (bilangan pecahan); Memahami pentingnya komentar dan tataletak kode; Menulis ekspresi aritmatik dan statemen penugasan; Menciptakan program yang membaca dan memproses masukan, dan menampilkan hasilnya; Bagaimana menggunakan string Python; Menciptakan program grafika menggunakan sejumlah bangun dasar dan teks. Pada Bab 3, Anda akan belajar: Mengimplementasikan keputusan menggunakan statemen if; Membandingkan bilangan integer, titik-mengambang, dan string; Menuliskan statemen menggunakan ekspresi Boolean; Memvalidasi masukan user. Pada Bab 4, Anda akan belajar: Mengimplementasikan loop while dan for; Menjadi familiar dengan algoritma-algoritma yang melibatkan loop; Memahami loop bersarang; Memproses string. Pada Bab 5, Anda akan belajar: Bagaimana mengimplementasikan fungsi; Menjadi familiar dengan konsep pelewatan parameter; Mengembangkan strategi pendekomposisian pekerjaan kompleks menjadi pekerjaan-pekerjaan yang lebih mudah; Mampu menentukan skop variabel. Pada Bab 6, Anda akan belajar: Mengumpulkan elemen-elemen menggunakan list; Menggunakan loop for untuk menjelajah list; Menggunakan sejumlah algoritma umum untuk memproses list; Menggunakan list dengan fungsi; Bekerja dengan tabel data. Pada Bab 7, Anda akan belajar: Membangun dan menggunakan kontainer set; Menggunakan operasi-operasi set untuk memproses data; Membangun dan menggunakan kontainer dictionary; Menggunakan dictionary untuk tabel; Menggunakan struktur kompleks. BUKU 2: SINYAL DAN CITRA DIGITAL dengan PYTHON GUI Buku ini merupakan versi bahasa Indonesia dari buku kami yang berjudul "LEARN FROM SCRATCH SIGNAL AND IMAGE PROCESSING WITH PYTHON GUI". Anda bisa mengaksesnya di Amazon maupun di Google Books. Pada buku ini, Anda akan belajar bagaimana menggunakan OpenCV, NumPy dan sejumlah pustaka lain untuk melakukan pemrosesan sinyal, pemrosesan citra, deteksi objek, dan ekstraksi fitur dengan memanfaatkan Python GUI (PyQt). Anda akan belajar cara memfilter sinyal, mendeteksi tepi dan segmen, dan menekan derau pada citra dengan memanfaatkan PyQt. Anda juga akan belajar cara mendeteksi objek (wajah, mata, dan mulut) menggunakan Haar Cascades dan cara mendeteksi fitur pada citra menggunakan Harris Corner Detection, Shi-Tomasi Corner Detector, Scale-Invariant Feature Transform (SIFT), dan Features from Accelerated Uji Segmen (FAST). Pada bab 1, Anda akan mempelajari secara langkah demi langkah: membuat aplikasi gui sederhana; menggunakan tombol radio; mengelompokkan tombol radio; menggunakan widget kotak centang; menggunakan dua grup kotak centang; memahami sinyal dan slot; mengonversi jenis data; menggunakan widget spin box; menggunakan scrollbar dan slider; menggunakan list widget; menggunakan kotak kombo; dan menggunakan widget Table. Pada bab 2, Anda akan mempelajari secara langkah demi langkah: membuat grafik garis sederhana; membuat grafik garis sederhana dengan python gui; membuat grafik garis sederhana dengan python gui: bagian 2; membuat dua atau lebih banyak grafik di sumbu yang sama; membuat dua sumbu dalam satu kanvas; menggunakan dua widget; menggunakan dua widget, masing-masing memiliki dua sumbu; menggunakan sumbu dengan tingkat opacity tertentu; memilih warna garis dari combo box; menghitung fast fourier transform; membuat gui untuk FFT; membuat gui untuk FFT dengan beberapa sinyal input lain; membuat gui untuk sinyal bising; membuat gui untuk penapisan sinyal berderau; dan membuat gui untuk penapisan sinyal wav. Pada bab 3, Anda akan mempelajari secara langkah demi langkah: mengkonversi

citra RGB menjadi grayscale; mengubah citra RGB menjadi citra YUV; mengkonversi citra RGB menjadi citra HSV; memfilter citra; menampilkan histogram citra; menampilkan histogram citra tertapis; memfilter citra dengan memanfaatkan opsi pada kotak centang; menerapkan ambang batas citra; dan menerapkan ambang batas citra adaptif. Pada bab 4, Anda akan mempelajari secara langkah demi langkah: membangkitkan dan menampilkan citra berderau; menerapkan deteksi tepi pada citra; menerapkan segmentasi citra menggunakan algoritma multiple thresholding dan k-means; dan menerapkan penekanan derau citra. Pada bab 5, Anda akan mempelajari secara langkah demi langkah: mendeteksi wajah, mata, dan mulut menggunakan haar cascades; mendeteksi wajah menggunakan haar cascades dengan pyqt; mendeteksi mata, dan mulut menggunakan haar cascades dengan pyqt; dan mengekstraksi objek yang terdeteksi. Pada bab 6, Anda akan mempelajari secara langkah demi langkah: mendeteksi fitur citra menggunakan deteksi harris corner; mendeteksi fitur citra menggunakan deteksi sudut shi-tomasi; mendeteksi fitur citra menggunakan Scale-Invariant Feature Transform (SIFT); dan mendeteksi fitur citra menggunakan Features from Accelerated Uji Segmen (FAST). BUKU 3: IMPLEMENTASI MACHINE LEARNING DENGAN PYTHON GUI Buku ini merupakan versi bahasa Indonesia dari buku kami yang berjudul “LEARN FROM SCRATCH MACHINE LEARNING WITH PYTHON GUI”. Anda bisa mengaksesnya di Amazon maupun di Google Books. Pada buku ini, Anda akan mempelajari cara menggunakan NumPy, Pandas, OpenCV, Scikit-Learn, dan pustaka lain untuk memplot grafik dan memproses citra digital. Kemudian, Anda akan mempelajari cara mengklasifikasikan fitur menggunakan model Perceptron, Adaline, Logistic Regression (LR), Support Vector Machine (SVM), Decision Tree (DT), Random Forest (RF), dan K-Nearest Neighbor (KNN). Anda juga akan belajar cara mengekstraksi fitur menggunakan algoritma Principal Component Analysis (PCA), Linear Discriminant Analysis (LDA), Kernel Principal Component Analysis (KPCA) dan menggunakannya dalam pembelajaran mesin (machine learning). Pada Bab 1, Anda akan mempelajari dasar-dasar penggunaan Python GUI dengan Qt Designer. Pada Bab 2, Anda akan mempelajari: Langkah-Langkah Menciptakan Grafik Garis Sederhana; Langkah-Langkah Menampilkan Grafik Garis dengan Python GUI: Bagian 1; Langkah-Langkah Menampilkan Grafik Garis dengan Python GUI: Bagian 2; Langkah-Langkah Menampilkan Dua atau Lebih Grafik pada Sumbu yang Sama; Langkah-Langkah Menciptakan Dua Sumbu pada Satu Canvas; Langkah-Langkah Menggunakan Dua Widget; Langkah-Langkah Menggunakan Dua Widget, Masing-Masing Memiliki Dua Sumbu; Langkah-Langkah Menggunakan Sumbu dengan Tingkat Keburaman Tertentu; Langkah-Langkah Memilih Warna Garis dari Combo Box; Langkah-Langkah Menghitung Fast Fourier Transform; Langkah-Langkah Menciptakan GUI untuk FFT; Langkah-Langkah Menciptakan GUI untuk FFT atas Sinyal-Sinyal Masukan Lain; Langkah-Langkah Menciptakan GUI untuk Sinyal Berderau; Langkah-Langkah Menciptakan GUI untuk Penapisan Sinyal Berderau; Langkah-Langkah Menciptakan GUI untuk Penapisan Sinyal Wav; Langkah-Langkah Mengkonversi Citra RGB Menjadi Keabuan; Langkah-Langkah Mengkonversi Citra RGB Menjadi Citra YUV; Langkah-Langkah Mengkonversi Citra RGB Menjadi Citra HSV; Langkah-Langkah Menapis Citra; Langkah-Langkah Menampilkan Histogram Citra ; Langkah-Langkah Menampilkan Histogram Citra Tertapis; Langkah-Langkah Menapis Citra: Memanfaatkan CheckBox; Langkah-Langkah Mengimplementasikan Ambang Batas Citra; dan Langkah-Langkah Mengimplementasikan Ambang Batas Adaptif. Pada

Bab 3, Anda akan mempelajari: Langkah-Langkah Implementasi Perceptron; Langkah-Langkah Implementasi Perceptron dengan PyQt; Langkah-Langkah Implementasi Adaline (ADaptive LInear NEuron); dan Langkah-Langkah Implementasi Adaline dengan PyQt. Pada Bab 4, Anda akan mempelajari: Langkah-Langkah Implementasi Perceptron Menggunakan Scikit-Learn dengan PyQt; Langkah-Langkah Implementasi Model Logistic Regression (LR); Langkah-Langkah Implementasi Model Logistic Regression dengan PyQt; Langkah-Langkah Implementasi Model Logistic Regression Menggunakan Scikit-Learn dengan PyQt; Langkah-Langkah Implementasi Model Support Vector Machine (SVM) Menggunakan Scikit-Learn; Langkah-Langkah Implementasi Decision Tree (DT) Menggunakan Scikit-Learn; Langkah-Langkah Implementasi Model Random Forest (RF) Menggunakan Scikit-Learn; dan Langkah-Langkah Implementasi Model K-Nearest Neighbor (KNN) Menggunakan Scikit-Learn. Pada Bab 5, Anda akan mempelajari: Langkah-Langkah Implementasi Principal Component Analysis (PCA); Langkah-Langkah Implementasi Principal Component Analysis (PCA) Menggunakan Scikit-Learn; Langkah-Langkah Implementasi Principal Component Analysis (PCA) Menggunakan Scikit-Learn dengan PyQt; Langkah-Langkah Implementasi Linear Discriminant Analysis (LDA); Langkah-Langkah Implementasi Linear Discriminant Analysis (LDA) dengan scikit-learn; Langkah-Langkah Implementasi Linear Discriminant Analysis (LDA); Menggunakan Scikit-Learn dengan PyQt; Langkah-Langkah Implementasi Kernel Principal Component Analysis (KPCA) Menggunakan Scikit-Learn; dan Langkah-Langkah Implementasi Kernel Principal Component Analysis (KPCA) Menggunakan Scikit-Learn dengan PyQt. Pada Bab 6, Anda akan mempelajari: Langkah-Langkah Memuat Dataset MNIST; Langkah-Langkah Memuat Dataset MNIST dengan PyQt; Langkah-Langkah Implementasi Perceptron dengan Ekstraktor Fitur PCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Perceptron dengan Ekstraktor Fitur LDA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Perceptron dengan Ekstraktor Fitur KPCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Logistic Regression (LR) dengan Ekstraktor Fitur PCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Logistic Regression (LR) dengan Ekstraktor Fitur LDA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Logistic Regression (LR) dengan Ekstraktor Fitur KPCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Support Vector Machine (SVM) dengan Ekstraktor Fitur PCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Support Vector Machine (SVM) dengan Ekstraktor Fitur LDA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Support Vector Machine (SVM) dengan Ekstraktor Fitur KPCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Decision Tree (DT) dengan Ekstraktor Fitur PCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Decision Tree (DT) dengan Ekstraktor Fitur LDA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Decision Tree (DT) dengan Ekstraktor Fitur KPCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Random Forest (RF) dengan Ekstraktor Fitur PCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Random Forest (RF) dengan Ekstraktor Fitur LDA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi Random Forest (RF) dengan Ekstraktor Fitur KPCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi K-Nearest Neighbor

(KNN) dengan Ekstraktor Fitur PCA pada Dataset MNIST Menggunakan PyQt; Langkah-Langkah Implementasi K-Nearest Neighbor (KNN) dengan Ekstraktor Fitur LDA pada Dataset MNIST Menggunakan PyQt; dan Langkah-Langkah Implementasi K-Nearest Neighbor (KNN) dengan Ekstraktor Fitur KPCA pada Dataset MNIST Menggunakan PyQt. Pada Bab 7, Anda akan mempelajari: Langkah-Langkah Membangkitkan dan Menampilkan Citra Berderau; Langkah-Langkah Mengimplementasikan Deteksi Tepi pada Citra; Langkah-Langkah Mengimplementasikan Segmentasi Menggunakan Ambang Batas Jamak dan Algoritma K-Means; Langkah-Langkah Mengimplementasikan Penekanan Derau pada Citra; Langkah-Langkah Mendeteksi Wajah, Mata, dan Mulut dengan Haar Cascades; Langkah-Langkah Mendeteksi Wajah Menggunakan Haar Cascades dengan PyQt; Langkah-Langkah Mendeteksi Mata dan Mulut Menggunakan Haar Cascades dengan PyQt; Langkah-Langkah Mengekstraksi Objek-Objek Terdeteksi; Langkah-Langkah Mendeteksi Fitur Citra dengan Harris Corner Detection; Langkah-Langkah Mendeteksi Fitur Citra dengan Shi-Tomasi Corner Detection; Langkah-Langkah Mendeteksi Fitur Citra dengan Scale-Invariant Feature Transform (SIFT) ; dan Langkah-Langkah Mendeteksi Fitur Citra dengan Accelerated Segment Test (FAST).

BUKU 4: Implementasi DEEP LEARNING Menggunakan Scikit-Learn, Keras, Dan Tensorflow Dengan Python GUI Buku ini merupakan versi bahasa Indonesia dari buku kami yang berjudul “The Practical Guides On Deep Learning Using SCIKIT-LEARN, KERAS, and TENSORFLOW with Python GUI” yang dapat dilihat di Amazon maupun Google Books. Dalam buku ini, Anda akan mempelajari cara menggunakan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy, dan library lainnya untuk mengimplementasikan deep learning dalam mengenali rambu lalu lintas menggunakan dataset GTSRB, mendeteksi tumor otak menggunakan dataset MRI Brain Image, mengklasifikasikan gender, dan mengenali ekspresi wajah menggunakan dataset FER2013. Pada bab 1, Anda akan belajar membuat aplikasi GUI untuk menampilkan grafik garis menggunakan PyQt. Anda juga akan belajar bagaimana mengkonversi citra menjadi keabuan, menjadi ruang warna YUV, dan menjadi ruang warna HSV. Bab ini juga mengajarkan bagaimana menampilkan citra dan histogramnya dan merancang GUI untuk mengimplementasikannya. Pada bab 2, Anda akan belajar menggunakan TensorFlow, Keras, Scikit-Learn, Pandas, NumPy dan sejumlah pustaka lain untuk memprediksi digit-digit tulisan tangan menggunakan dataset MNIST. Pada bab 3, Anda akan mempelajari cara menggunakan TensorFlow, Keras, Scikit-Learn, PIL, Pandas, NumPy, dan pustaka lain untuk mengenali rambu lalu lintas menggunakan dataset GTSRB dari Kaggle. Ada beberapa jenis rambu lalu lintas seperti batas kecepatan, dilarang masuk, rambu lalu lintas, belok kiri atau kanan, anak-anak menyeberang, tidak ada kendaraan berat yang lewat, dll. Klasifikasi rambu lalu lintas adalah proses untuk mengidentifikasi kelas rambu lalu lintas tersebut. Pada proyek Python ini, Anda akan membangun model jaringan saraf tiruan (deep neural network) yang dapat mengklasifikasikan rambu lalu lintas dalam citra ke dalam kategori yang berbeda. Dengan model ini, Anda akan dapat membaca dan memahami rambu lalu lintas yang merupakan pekerjaan yang sangat penting bagi semua kendaraan otonom. Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada bab 4, Anda akan mempelajari cara menggunakan TensorFlow, Keras, Scikit-Learn, Pandas, NumPy dan pustaka lainnya untuk melakukan pendeteksian tumor otak menggunakan dataset Brain Image MRI yang disediakan oleh Kaggle (<https://www.kaggle.com/navoneel/brain-mri-images-for->

brain-tumor-detection). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada bab 5, Anda akan mempelajari cara menggunakan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan library lain untuk melakukan klasifikasi gender menggunakan dataset yang disediakan oleh Kaggle (<https://www.kaggle.com/cashutosh/gender-classification-dataset>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada bab 6, Anda akan mempelajari cara menggunakan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan pustaka lain untuk melakukan pengenalan ekspresi wajah menggunakan dataset FER2013 yang disediakan oleh Kaggle (<https://www.kaggle.com/nicolejyt/facialexpressionrecognition>). Anda juga akan membangun sebuah GUI untuk tujuan ini.

BUKU 5: Panduan Praktis Deep Learning Menggunakan Scikit-Learn, Keras, Dan Tensorflow Dengan Python GUI Buku ini merupakan versi bahasa Indonesia dari buku kami yang berjudul “STEP BY STEP TUTORIALS ON DEEP LEARNING USING SCIKIT-LEARN, KERAS, AND TENSORFLOW WITH PYTHON GUI” yang dapat dilihat di Amazon maupun Google Books. Dalam buku ini, Anda akan mempelajari cara menerapkan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy, dan library lainnya untuk mengimplementasikan deteksi wajah, mata, dan mulut menggunakan Haar Cascades, klasifikasi/prediksi buah, klasifikasi/prediksi kucing/anjing, klasifikasi/prediksi mebel, klasifikasi/prediksi mode (fashion). Pada bab 1, Anda akan belajar bagaimana menggunakan pustaka OpenCV, PIL, NumPy dan pustaka lain untuk melakukan deteksi wajah, mata, dan mulut menggunakan Haar Cascades dengan Python GUI (PyQt). Pada bab 2, Anda akan mempelajari bagaimana memanfaatkan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan pustaka-pustaka lain untuk mengimplementasikan klasifikasi buah menggunakan dataset Fruits 360 yang disediakan oleh Kaggle (<https://www.kaggle.com/moltean/fruits/code>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada bab 3, Anda akan belajar menerapkan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah pustaka lain untuk klasifikasi kucing/anjing menggunakan dataset yang disediakan oleh Kaggle (<https://www.kaggle.com/chetankv/dogs-cats-images>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada bab 4, Anda akan belajar menggunakan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan pustakan lain untuk mendeteksi atau mengklasifikasi mebel menggunakan dataset Furniture Detector yang disediakan oleh Kaggle (<https://www.kaggle.com/akkithetechie/furniture-detector>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada bab 5, Anda akan memanfaatkan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah modul lain untuk melakukan klasifikasi terhadap citra-citra mode menggunakan dataset Fashion MNIST yang disediakan oleh Kaggle (<https://www.kaggle.com/zalando-research/fashionmnist/code>). Anda juga akan membangun sebuah GUI untuk tujuan ini.

BUKU 6: Tutorial Langkah Demi Langkah DEEP LEARNING Menggunakan Scikit-Learn, Keras, Dan TensorFlow Dengan Python GUI Buku ini merupakan versi bahasa Indonesia dari buku kami yang berjudul “Step by Step Tutorials Image Classification Using Scikit-Learn, Keras, and Tensorflow with Python GUI” yang dapat dilihat di Amazon maupun Google Books. Pada bab 1, Anda akan belajar dasar-dasar penggunaan PyQt untuk pemrosesan citra digital. Sejumlah projek Python GUI yang diimplementasikan di sini adalah mengkonversi citra RGB menjadi keabuan, mengkonversi citra RGB menjadi citra YUV, mengkonversi citra RGB menjadi citra HSV, menapis citra, menampilkan histogram citra, menampilkan histogram citra tertapis,

dan memanfaatkan widget checkbox untuk penapisan citra, dan menerapkan ambang batas citra. Pada bab 2, Anda akan memanfaatkan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah pustaka lain untuk mengklasifikasi spesies monyet menggunakan dataset 10 Monkey Species yang disediakan oleh Kaggle (<https://www.kaggle.com/slothkong/10-monkey-species/download>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada bab 3, Pada tutorial ini, Anda akan belajar menerapkan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah pustakan lain untuk mengklasifikasi batu, kertas, dan gunting menggunakan dataset yang disediakan oleh Kaggle (<https://www.kaggle.com/sanikamal/rock-paper-scissors-dataset/download>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada bab 4, Anda akan belajar menerapkan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah pustaka lain untuk mengklasifikasi pesawat, mobil, dan kapal menggunakan dataset Multiclass-image-dataset-airplane-car-ship yang disediakan oleh Kaggle (<https://www.kaggle.com/abtabm/multiclassimagedatasetairplanecar>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada bab 5, Anda akan belajar menggunakan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah pustaka lain untuk mendeteksi face mask menggunakan dataset Face Mask Detection Dataset yang disediakan oleh Kaggle (<https://www.kaggle.com/omkargurav/face-mask-dataset/download>). Anda juga akan membangun sebuah GUI untuk tujuan ini.

BUKU 7: Klasifikasi Citra Berbasis Deep Learning Menggunakan Scikit-Learn, Tensorflow, Dan Keras Dengan Python GUI Buku ini merupakan versi bahasa Indonesia dari buku kami yang berjudul "Project-Based Approach On DEEP LEARNING Using Scikit-Learn, Keras, and Tensorflow with Python GUI" yang dapat dilihat di Amazon maupun Google Books. Dalam buku ini, Anda akan mempelajari cara menerapkan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy, dan library lainnya untuk mengimplementasikan klasifikasi citra. Pada Bab 1, Anda akan menggunakan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy danb sejumlah pustaka lain untuk klasifikasi cuaca menggunakan dataset Multi-class Weather Dataset yang disediakan oleh Kaggle (<https://www.kaggle.com/pratik2901/multiclass-weather-dataset/download>). Pada Bab 2, Anda akan menerapkan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah pustaka lain untuk mengenali jenis bunga menggunakan dataset Flowers Recognition dataset yang disediakan oleh Kaggle (<https://www.kaggle.com/alxmamaev/flowers-recognition/download>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada Bab 3, Anda akan menggunakan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah pustaka lain untuk mendeteksi plat nomor kendaraan menggunakan dataset Car License Plate Detection yang disediakan oleh Kaggle (<https://www.kaggle.com/andrewmvd/car-plate-detection/download>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada Bab 4, Anda akan belajar bagaimana menggunakan TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah pustaka lain untuk melakukan pengenalan bahasa isyarat menggunakan Sign Language Digits Dataset yang disediakan oleh Kaggle (<https://www.kaggle.com/ardamavi/sign-language-digits-dataset/download>). Anda juga akan membangun sebuah GUI untuk tujuan ini. Pada Bab 5, Anda akan belajar bagaimana menerapkan pustaka TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy dan sejumlah pustaka lain untuk mendeteksi keretakan permukaan beton menggunakan dataset Surface Crack

Detection yang disediakan oleh Kaggle (<https://www.kaggle.com/arunrk7/surface-crack-detection/download>). Anda juga akan membangun sebuah GUI untuk tujuan ini.

Buku ini merupakan versi bahasa Indonesia dari buku kami yang berjudul “LEARN FROM SCRATCH SIGNAL AND IMAGE PROCESSING WITH PYTHON GUI”. Anda bisa mengaksesnya di Amazon maupun di Google Books. Pada buku ini, Anda akan belajar bagaimana menggunakan OpenCV, NumPy dan sejumlah pustaka lain untuk melakukan pemrosesan sinyal, pemrosesan citra, deteksi objek, dan ekstraksi fitur dengan memanfaatkan Python GUI (PyQt). Anda akan belajar cara memfilter sinyal, mendeteksi tepi dan segmen, dan menekan derau pada citra dengan memanfaatkan PyQt. Anda juga akan belajar cara mendeteksi objek (wajah, mata, dan mulut) menggunakan Haar Cascades dan cara mendeteksi fitur pada citra menggunakan Harris Corner Detection, Shi-Tomasi Corner Detector, Scale-Invariant Feature Transform (SIFT), dan Features from Accelerated Uji Segmen (FAST). Pada bab 1, Anda akan mempelajari secara langkah demi langkah: membuat aplikasi gui sederhana; menggunakan tombol radio; mengelompokkan tombol radio; menggunakan widget kotak centang; menggunakan dua grup kotak centang; memahami sinyal dan slot; mengonversi jenis data; menggunakan widget spin box; menggunakan scrollbar dan slider; menggunakan list widget; menggunakan kotak kombo; dan menggunakan widget Table. Pada bab 2, Anda akan mempelajari secara langkah demi langkah: membuat grafik garis sederhana; membuat grafik garis sederhana dengan python gui; membuat grafik garis sederhana dengan python gui: bagian 2; membuat dua atau lebih banyak grafik di sumbu yang sama; membuat dua sumbu dalam satu kanvas; menggunakan dua widget; menggunakan dua widget, masing-masing memiliki dua sumbu; menggunakan sumbu dengan tingkat opacity tertentu; memilih warna garis dari combo box; menghitung fast fourier transform; membuat gui untuk FFT; membuat gui untuk FFT dengan beberapa sinyal input lain; membuat gui untuk sinyal bising; membuat gui untuk penapisan sinyal berderau; dan membuat gui untuk penapisan sinyal wav. Pada bab 3, Anda akan mempelajari secara langkah demi langkah: mengkonversi citra RGB menjadi grayscale; mengubah citra RGB menjadi citra YUV; mengkonversi citra RGB menjadi citra HSV; memfilter citra; menampilkan histogram citra; menampilkan histogram citra tertapis; memfilter citra dengan memanfaatkan opsi pada kotak centang; menerapkan ambang batas citra; dan menerapkan ambang batas citra adaptif. Pada bab 4, Anda akan mempelajari secara langkah demi langkah: membangkitkan dan menampilkan citra berderau; menerapkan deteksi tepi pada citra; menerapkan segmentasi citra menggunakan algoritma multiple thresholding dan k-means; dan menerapkan penekanan derau citra. Pada bab 5, Anda akan mempelajari secara langkah demi langkah: mendeteksi wajah, mata, dan mulut menggunakan haar cascades; mendeteksi wajah menggunakan haar cascades dengan pyqt; mendeteksi mata, dan mulut menggunakan haar cascades dengan pyqt; dan mengekstraksi objek yang terdeteksi. Pada bab 6, Anda akan mempelajari secara langkah

demi langkah: mendeteksi fitur citra menggunakan deteksi harris corner; mendeteksi fitur citra menggunakan deteksi sudut shi-tomasi; mendeteksi fitur citra menggunakan Scale-Invariant Feature Transform (SIFT); dan mendeteksi fitur citra menggunakan Features from Accelerated Uji Segmen (FAST).

The book presents a remarkable collection of chapters covering a wide range of topics in the areas of intelligent systems and artificial intelligence, and their real-world applications. It gathers the proceedings of the Intelligent Systems Conference 2019, which attracted a total of 546 submissions from pioneering researchers, scientists, industrial engineers, and students from all around the world. These submissions underwent a double-blind peer-review process, after which 190 were selected for inclusion in these proceedings. As intelligent systems continue to replace and sometimes outperform human intelligence in decision-making processes, they have made it possible to tackle a host of problems more effectively. This branching out of computational intelligence in several directions and use of intelligent systems in everyday applications have created the need for an international conference as a venue for reporting on the latest innovations and trends. This book collects both theory and application based chapters on virtually all aspects of artificial intelligence; presenting state-of-the-art intelligent methods and techniques for solving real-world problems, along with a vision for future research, it represents a unique and valuable asset.

Over 50 problems solved with classical algorithms + ML / DL models
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DESCRIPTION This book starts with basic Image Processing and manipulation problems and demonstrates how to solve them with popular Python libraries and modules. It then concentrates on problems based on Geometric image transformations and problems to be solved with Image hashing. Next, the book focuses on solving problems based on Sampling, Convolution, Discrete Fourier transform, Frequency domain filtering and image restoration with deconvolution. It also aims at solving Image enhancement problems using different algorithms such as spatial filters and create a super resolution image using SRGAN. Finally, it explores popular facial image processing problems and solves them with Machine learning and Deep learning models using popular python ML / DL libraries.
WHAT YOU WILL LEARN ? Develop strong grip on the fundamentals of Image Processing and Image Manipulation. ? Solve popular Image Processing problems using Machine Learning and Deep Learning models. ? Working knowledge on Python libraries including numpy, scipy and scikit-image. ? Use popular Python Machine Learning packages such as scikit-learn, Keras and pytorch. ? Live implementation of Facial Image Processing techniques such as Face Detection / Recognition / Parsing dlib and MTCNN.
WHO THIS BOOK IS FOR This book is designed specially for computer vision users, machine

