

Hands On Computer Vision With Tensorflow 2 Levera

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*Hands On Computer Vision With
Tensorflow 2 Levera*

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HOPE BUCK

Hands-On Deep Learning for Images with TensorFlow
Springer

Leverage the power of Java and deep learning to build production-grade Computer Vision applications
Key Features
Build real-world Computer Vision applications using the power of neural networks
Implement image classification, object detection, and face recognition
Know best practices on effectively building and deploying deep learning models in Java
Book Description
Although machine learning is an exciting world to explore, you may feel confused by all of its theoretical aspects. As a Java developer, you will be used to telling the computer exactly what to do, instead of being shown how data is generated; this causes many developers to struggle to adapt to machine learning. The goal of this book is to walk you through the process of efficiently training machine learning and deep learning models for Computer Vision using the most up-to-date techniques. The book is designed to familiarize you with neural networks, enabling you to train them efficiently, customize existing state-of-the-art architectures, build real-world Java applications, and get great results in a short space of time. You will build real-world Computer Vision applications, ranging from a simple Java handwritten digit recognition model to real-time Java autonomous car driving systems and face recognition models. By the end of this book, you will have mastered the best practices and modern techniques needed to build advanced Computer Vision Java applications and achieve production-grade accuracy. What you will learn
Discover neural networks and their applications in Computer Vision
Explore the popular Java

frameworks and libraries for deep learning
Build deep neural networks in Java
Implement an end-to-end image classification application in Java
Perform real-time video object detection using deep learning
Enhance performance and deploy applications for production
Who this book is for
This book is for data scientists, machine learning developers and deep learning practitioners with Java knowledge who want to implement machine learning and deep neural networks in the computer vision domain. You will need to have a basic knowledge of Java programming.
[Computer Vision and Applications](#) "O'Reilly Media, Inc."
Apply neural network architectures to build state-of-the-art computer vision applications using the Python programming language
Key Features
Gain a fundamental understanding of advanced computer vision and neural network models in use today
Cover tasks such as low-level vision, image classification, and object detection
Develop deep learning models on cloud platforms and optimize them using TensorFlow Lite and the OpenVINO toolkit
Book Description
Computer vision allows machines to gain human-level understanding to visualize, process, and analyze images and videos. This book focuses on using TensorFlow to help you learn advanced computer vision tasks such as image acquisition, processing, and analysis. You'll start with the key principles of computer vision and deep learning to build a solid foundation, before covering neural network architectures and understanding how they work rather than using them as a black box. Next, you'll explore architectures such as VGG, ResNet, Inception, R-CNN, SSD, YOLO, and MobileNet. As you advance, you'll learn to use visual search methods using transfer learning. You'll also cover advanced computer vision concepts such as semantic segmentation, image inpainting with GAN's, object tracking, video segmentation, and action

recognition. Later, the book focuses on how machine learning and deep learning concepts can be used to perform tasks such as edge detection and face recognition. You'll then discover how to develop powerful neural network models on your PC and on various cloud platforms. Finally, you'll learn to perform model optimization methods to deploy models on edge devices for real-time inference. By the end of this book, you'll have a solid understanding of computer vision and be able to confidently develop models to automate tasks. What you will learn
Explore methods of feature extraction and image retrieval and visualize different layers of the neural network model
Use TensorFlow for various visual search methods for real-world scenarios
Build neural networks or adjust parameters to optimize the performance of models
Understand TensorFlow DeepLab to perform semantic segmentation on images and DCGAN for image inpainting
Evaluate your model and optimize and integrate it into your application to operate at scale
Get up to speed with techniques for performing manual and automated image annotation
Who this book is for
This book is for computer vision professionals, image processing professionals, machine learning engineers and AI developers who have some knowledge of machine learning and deep learning and want to build expert-level computer vision applications. In addition to familiarity with TensorFlow, Python knowledge will be required to get started with this book.

[Hands-On Image Processing with Python](#) Apress

Whether you're a software engineer aspiring to enter the world of deep learning, a veteran data scientist, or a hobbyist with a simple dream of making the next viral AI app, you might have wondered where to begin. This step-by-step guide teaches you how to build practical deep learning applications for the cloud,

mobile, browsers, and edge devices using a hands-on approach. Relying on years of industry experience transforming deep learning research into award-winning applications, Anirudh Koul, Siddha Ganju, and Meher Kasam guide you through the process of converting an idea into something that people in the real world can use. Train, tune, and deploy computer vision models with Keras, TensorFlow, Core ML, and TensorFlow Lite Develop AI for a range of devices including Raspberry Pi, Jetson Nano, and Google Coral Explore fun projects, from Silicon Valley's Not Hotdog app to 40+ industry case studies Simulate an autonomous car in a video game environment and build a miniature version with reinforcement learning Use transfer learning to train models in minutes Discover 50+ practical tips for maximizing model accuracy and speed, debugging, and scaling to millions of users

Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow Machine Learning Mastery

Discover powerful ways to use deep learning algorithms and solve real-world computer vision problems using Python Key Features Solve the trickiest of problems in computer vision by combining the power of deep learning and neural networks Leverage PyTorch 1.x capabilities to perform image classification, object detection, and more Train and deploy enterprise-grade, deep learning models for computer vision applications Book Description Computer vision techniques play an integral role in helping developers gain a high-level understanding of digital images and videos. With this book, you'll learn how to solve the trickiest problems in computer vision (CV) using the power of deep learning algorithms, and leverage the latest features of PyTorch 1.x to perform a variety of CV tasks. Starting with a quick overview of the PyTorch library and key deep learning concepts, the book then covers common and not-so-common challenges faced while performing image recognition, image segmentation, object detection, image generation, and other tasks. Next, you'll understand how to implement these tasks using various deep learning architectures such as convolutional neural networks (CNNs), recurrent neural networks (RNNs), long short-term memory (LSTM), and generative adversarial networks (GANs). Using a problem-solution approach, you'll learn how to solve any issue you might face while fine-tuning the performance of a model or integrating it into your application. Later, you'll get to grips with scaling your model to handle larger workloads, and

implementing best practices for training models efficiently. By the end of this CV book, you'll be proficient in confidently solving many CV related problems using deep learning and PyTorch. What you will learn Develop, train and deploy deep learning algorithms using PyTorch 1.x Understand how to fine-tune and change hyperparameters to train deep learning algorithms Perform various CV tasks such as classification, detection, and segmentation Implement a neural style transfer network based on CNNs and pre-trained models Generate new images and implement adversarial attacks using GANs Implement video classification models based on RNN, LSTM, and 3D-CNN Discover best practices for training and deploying deep learning algorithms for CV applications Who this book is for Computer vision professionals, data scientists, deep learning engineers, and AI developers looking for quick solutions for various computer vision problems will find this book useful. Intermediate-level knowledge of computer vision concepts, along with Python programming experience is required.

Hands-On One-shot Learning with Python Packt Publishing Ltd

This practical book shows you how to employ machine learning models to extract information from images. ML engineers and data scientists will learn how to solve a variety of image problems including classification, object detection, autoencoders, image generation, counting, and captioning with proven ML techniques. This book provides a great introduction to end-to-end deep learning: dataset creation, data preprocessing, model design, model training, evaluation, deployment, and interpretability. Google engineers Valliappa Lakshmanan, Martin Görner, and Ryan Gillard show you how to develop accurate and explainable computer vision ML models and put them into large-scale production using robust ML architecture in a flexible and maintainable way. You'll learn how to design, train, evaluate, and predict with models written in TensorFlow or Keras. You'll learn how to: Design ML architecture for computer vision tasks Select a model (such as ResNet, SqueezeNet, or EfficientNet) appropriate to your task Create an end-to-end ML pipeline to train, evaluate, deploy, and explain your model Preprocess images for data augmentation and to support learnability Incorporate explainability and responsible AI best practices Deploy image models as web services or on edge devices Monitor and manage ML models

Modern Computer Vision with PyTorch Packt Publishing Ltd

Step-by-step tutorials on deep learning neural networks for computer vision in python with Keras.

Hands-On Image Generation with TensorFlow Packt Publishing Ltd

The four-volume set LNCS 8925, 8926, 8927, and 8928 comprises the refereed post-proceedings of the Workshops that took place in conjunction with the 13th European Conference on Computer Vision, ECCV 2014, held in Zurich, Switzerland, in September 2014. The 203 workshop papers were carefully reviewed and selected for inclusion in the proceedings. They were presented at workshops with the following themes: where computer vision meets art; computer vision in vehicle technology; spontaneous facial behavior analysis; consumer depth cameras for computer vision; "chlearn" looking at people: pose, recovery, action/interaction, gesture recognition; video event categorization, tagging and retrieval towards big data; computer vision with local binary pattern variants; visual object tracking challenge; computer vision + ontology applies cross-disciplinary technologies; visual perception of affordance and functional visual primitives for scene analysis; graphical models in computer vision; light fields for computer vision; computer vision for road scene understanding and autonomous driving; soft biometrics; transferring and adapting source knowledge in computer vision; surveillance and re-identification; color and photometry in computer vision; assistive computer vision and robotics; computer vision problems in plant phenotyping; and non-rigid shape analysis and deformable image alignment. Additionally, a panel discussion on video segmentation is included. .

Computer Vision Using Deep Learning AI Publishing LLC

Explore the various packages in Julia that support image processing and build neural networks for video processing and object tracking. Key Features Build a full-fledged image processing application using JuliaImages Perform basic to advanced image and video stream processing with Julia's APIs Understand and optimize various features of OpenCV with easy examples Book Description Hands-On Computer Vision with Julia is a thorough guide for developers who want to get started with building computer vision applications using Julia. Julia is well suited to image processing because it's easy to use and lets you write easy-to-compile and efficient machine code. . This book begins by introducing you to Julia's image processing libraries

such as Images.jl and ImageCore.jl. You'll get to grips with analyzing and transforming images using JuliaImages; some of the techniques discussed include enhancing and adjusting images. As you make your way through the chapters, you'll learn how to classify images, cluster them, and apply neural networks to solve computer vision problems. In the concluding chapters, you will explore OpenCV applications to perform real-time computer vision analysis, for example, face detection and object tracking. You will also understand Julia's interaction with Tesseract to perform optical character recognition and build an application that brings together all the techniques we introduced previously to consolidate the concepts learned. By end of the book, you will have understood how to utilize various Julia packages and a few open source libraries such as Tesseract and OpenCV to solve computer vision problems with ease. What you will learn

- Analyze image metadata and identify critical data using JuliaImages
- Apply filters and improve image quality and color schemes
- Extract 2D features for image comparison using JuliaFeatures
- Cluster and classify images with KNN/SVM machine learning algorithms
- Recognize text in an image using the Tesseract library
- Use OpenCV to recognize specific objects or faces in images and videos
- Build neural network and classify images with MXNet

Who this book is for Hands-On Computer Vision with Julia is for Julia developers who are interested in learning how to perform image processing and want to explore the field of computer vision. Basic knowledge of Julia will help you understand the concepts more effectively.

Hands-On Transfer Learning with Python Packt Publishing Ltd
Be at your A game in building Intelligent systems by leveraging Computer vision and Machine Learning. **KEY FEATURES**

- Step-by-step instructions and code snippets for real world ML projects.
- Covers entire spectrum from basics to advanced concepts such as deep learning, transfer learning, and model optimization
- Loaded with practical tips and best practices for implementing machine learning with OpenCV for optimising your workflow.

DESCRIPTION This book is an in-depth guide that merges machine learning techniques with OpenCV, the most popular computer vision library, using Python. The book introduces fundamental concepts in machine learning and computer vision, progressing to practical implementation with OpenCV. Concepts related to image preprocessing, contour and thresholding techniques, motion

detection and tracking are explained in a step-by-step manner using code and output snippets. Hands-on projects with real-world datasets will offer you an invaluable experience in solving OpenCV challenges with machine learning. It's an ultimate guide to explore areas like deep learning, transfer learning, and model optimization, empowering readers to tackle complex tasks. Every chapter offers practical tips and tricks to build effective ML models. By the end, you would have mastered and applied ML concepts confidently to real-world computer vision problems and will be able to develop robust and accurate machine-learning models for diverse applications. Whether you are new to machine learning or seeking to enhance your computer vision skills, This book is an invaluable resource for mastering the integration of machine learning and computer vision using OpenCV and Python.

WHAT WILL YOU LEARN

- Learn how to work with images and perform basic image processing tasks using OpenCV.
- Implement machine learning techniques to computer vision tasks such as image classification, object detection, and image segmentation.
- Work on real-world projects and datasets to gain hands-on experience in applying machine learning techniques with OpenCV.
- Explore the concepts of deep learning using Tensorflow and Keras and how it can be used for computer vision tasks.
- Understand the concept of transfer learning and how pre-trained models can be leveraged for new tasks.
- Utilize techniques for model optimization and deployment in resource-constrained environments.
- Implement end-to-end solutions and address challenges encountered in practical scenarios.

WHO IS THIS BOOK FOR? This book is for everyone with a basic understanding of programming and who wants to apply machine learning in computer vision using OpenCV and Python. Whether you're a student, researcher, or developer, this book will equip you with practical skills for machine learning projects. Some familiarity with Python and machine learning concepts is assumed. Beginners too will find this book valuable as it offers clear examples and explanations for every concept.

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- Chapter 6: Detect Corners and Road Lane using OpenCV
- Chapter 7: Object And Motion Detection Using Opencv
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- Image Segmentation and Detecting Faces Using OpenCV
- Chapter 9: Introduction to Deep Learning with OpenCV
- Chapter 10: Advance Deep Learning Projects with OpenCV
- Chapter 11: Deployment of OpenCV projects

Practical Machine Learning for Computer Vision Packt Publishing Ltd
Get well versed with state-of-the-art techniques to tailor training processes and boost the performance of computer vision models using machine learning and deep learning techniques

Key Features

- Develop, train, and use deep learning algorithms for computer vision tasks using TensorFlow 2.x
- Discover practical recipes to overcome various challenges faced while building computer vision models
- Enable machines to gain a human level understanding to recognize and analyze digital images and videos

Book Description Computer vision is a scientific field that enables machines to identify and process digital images and videos. This book focuses on independent recipes to help you perform various computer vision tasks using TensorFlow. The book begins by taking you through the basics of deep learning for computer vision, along with covering TensorFlow 2.x's key features, such as the Keras and tf.data.Dataset APIs. You'll then learn about the ins and outs of common computer vision tasks, such as image classification, transfer learning, image enhancing and styling, and object detection. The book also covers autoencoders in domains such as inverse image search indexes and image denoising, while offering insights into various architectures used in the recipes, such as convolutional neural networks (CNNs), region-based CNNs (R-CNNs), VGGNet, and You Only Look Once (YOLO). Moving on, you'll discover tips and tricks to solve any problems faced while building various computer vision applications. Finally, you'll delve into more advanced topics such as Generative Adversarial Networks (GANs), video processing, and AutoML, concluding with a section focused on techniques to help you boost the performance of your networks. By the end of this TensorFlow book, you'll be able to confidently tackle a wide range of computer vision problems using TensorFlow 2.x. What you will learn

- Understand how to detect objects using state-of-the-art models such as YOLOv3
- Use AutoML to predict gender and age from images
- Segment images using different approaches such as FCNs and generative models
- Learn how to improve your network's performance using rank-N

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

[Computer Vision](#) Elsevier

Through a series of recent breakthroughs, deep learning has boosted the entire field of machine learning. Now, even programmers who know close to nothing about this technology can use simple, efficient tools to implement programs capable of learning from data. This practical book shows you how. By using concrete examples, minimal theory, and two production-ready Python frameworks—Scikit-Learn and TensorFlow—author Aurélien Géron helps you gain an intuitive understanding of the concepts and tools for building intelligent systems. You'll learn a range of techniques, starting with simple linear regression and progressing to deep neural networks. With exercises in each chapter to help you apply what you've learned, all you need is programming experience to get started. Explore the machine learning landscape, particularly neural nets Use Scikit-Learn to track an example machine-learning project end-to-end Explore several training models, including support vector machines, decision trees, random forests, and ensemble methods Use the TensorFlow library to build and train neural nets Dive into neural net architectures, including convolutional nets, recurrent nets, and deep reinforcement learning Learn techniques for training and scaling deep neural nets

Practical Deep Learning for Cloud, Mobile, and Edge Packt Publishing Ltd

Explore Detectron2 using cutting-edge models and learn all about implementing future computer vision applications in custom domains Purchase of the print or Kindle book includes a free PDF eBook Key Features Learn how to tackle common computer vision tasks in modern businesses with Detectron2 Leverage Detectron2

performance tuning techniques to control the model's finest details Deploy Detectron2 models into production and develop Detectron2 models for mobile devices Book Description Computer vision is a crucial component of many modern businesses, including automobiles, robotics, and manufacturing, and its market is growing rapidly. This book helps you explore Detectron2, Facebook's next-gen library providing cutting-edge detection and segmentation algorithms. It's used in research and practical projects at Facebook to support computer vision tasks, and its models can be exported to TorchScript or ONNX for deployment. The book provides you with step-by-step guidance on using existing models in Detectron2 for computer vision tasks (object detection, instance segmentation, key-point detection, semantic detection, and panoptic segmentation). You'll get to grips with the theories and visualizations of Detectron2's architecture and learn how each module in Detectron2 works. As you advance, you'll build your practical skills by working on two real-life projects (preparing data, training models, fine-tuning models, and deployments) for object detection and instance segmentation tasks using Detectron2. Finally, you'll deploy Detectron2 models into production and develop Detectron2 applications for mobile devices. By the end of this deep learning book, you'll have gained sound theoretical knowledge and useful hands-on skills to help you solve advanced computer vision tasks using Detectron2. What you will learn Build computer vision applications using existing models in Detectron2 Grasp the concepts underlying Detectron2's architecture and components Develop real-life projects for object detection and object segmentation using Detectron2 Improve model accuracy using Detectron2's performance-tuning techniques Deploy Detectron2 models into server environments with ease Develop and deploy Detectron2 models into browser and mobile environments Who this book is for If you are a deep learning application developer, researcher, or software developer with some prior knowledge about deep learning, this book is for you to get started and develop deep learning models for computer vision applications. Even if you are an expert in computer vision and curious about the features of Detectron2, or you would like to learn some cutting-edge deep learning design patterns, you will find this book helpful. Some HTML, Android, and C++ programming skills are advantageous if you want to deploy computer vision applications

using these platforms.

Mastering Computer Vision with TensorFlow 2.x Cambridge University Press

Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala [Deep Learning for Computer Vision](#) "O'Reilly Media, Inc." Computer Vision Textbook for Beginners with 3 Hands-On Projects Are you ready to crush your Computer Vision career goals?The recent advances in the field of computer vision have simply been astounding. In less than a decade, the rate of accuracy for object identification and classification has risen from 50 percent to 99 percent. Today's systems are, in fact, more accurate than humans at swiftly detecting and responding to visual inputs. The emergence of deep learning and the advent of very large datasets in recent years have led to an increase in the number of computer vision applications. Against this backdrop, it's worthwhile to add computer vision knowledge to your data science arsenal. Now is the perfect time to enter this dynamic field. Computer Vision with Python for Beginners presents you with a hands-on, straightforward approach to learn computer vision fast. The step-by-step format of this book makes learning computer vision simple, fast, and easy. The exercises at the end of each chapter test your knowledge of the concepts you have covered. They also help you apply what you have learned. This

book presents you with: A solid foundation in computer vision. Knowledge of elementary and intermediate topics. Basics of coding in Python. Links to additional content related to the topics you study. Access to external files to train and test all the knowledge you have acquired about a computer vision tool. Three mini-projects in the concluding section of the book that help you to bring together all the theoretical concepts you've learned. You begin with Python installation in the first chapter. Then you have a crash course in Python in the second chapter. Jumping straight to Python quickens your learning and makes it simpler to follow along. Throughout this book, the code is written using Jupyter Notebook. Access to the datasets used in this book is easy. In the final section, you work on three hands-on mini-projects: Detecting Hand Symbols for Rock, Paper, Scissors Game Covid-19 Detection from X-Rays Detecting Weather from Images The scripts, images, and graphs are clear. They are designed to help you understand the visuals to the text description easily. This book is the perfect option for self-study, even if your proficiency is at the level of an intermediate learner. You can tackle new computer vision problems confidently and develop complete solutions at your workplace. Finally, you can count on this learning by doing book to accomplish your computer vision career goals faster. The topics covered include: Introduction to Computer Vision Environment Setup & Writing Your First Program in Python Python Crash Course Basics of Image Processing Basics of Video Processing Face Detection with OpenCV in Python Introduction to Machine Learning for Computer Vision Introduction to Deep Learning for Computer Vision Transfer Learning for Computer Vision Object Detection with YOLO Introduction to GANS Hit BUY NOW and begin your Computer Vision learning journey. *PyTorch Computer Vision Cookbook* "O'Reilly Media, Inc." Based on the highly successful 3-volume reference Handbook of Computer Vision and Applications, this concise edition covers in a single volume the entire spectrum of computer vision ranging from the imaging process to high-end algorithms and applications. This book consists of three parts, including an application gallery. Bridges the gap between theory and practical applications Covers modern concepts in computer vision as well as modern developments in imaging sensor technology Presents a unique interdisciplinary approach covering different areas of modern science

Object Detection and Segmentation Using Detectron2 Packt Publishing Ltd 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.

Hands-on ML Projects with OpenCV Orange Education Pvt Ltd Explore Detectron2 using cutting-edge models and learn all about implementing future computer vision applications in custom domains Purchase of the print or Kindle book includes a free PDF eBook Key Features: Learn how to tackle common computer vision tasks in modern businesses with Detectron2 Leverage Detectron2 performance tuning techniques to control the model's finest details Deploy Detectron2 models into production and develop Detectron2 models for mobile devices Book Description: Computer vision is a crucial component of many modern businesses, including automobiles, robotics, and manufacturing, and its market is growing rapidly. This book helps you explore Detectron2, Facebook's next-gen library providing cutting-edge detection and segmentation algorithms. It's used in research and practical projects at Facebook to support computer vision tasks, and its models can be exported to TorchScript or ONNX for deployment. The book provides you with step-by-step guidance on using existing models in Detectron2 for computer vision tasks (object detection, instance segmentation, key-point detection, semantic detection, and panoptic segmentation). You'll get to grips with the theories and visualizations of Detectron2's architecture and learn how each module in Detectron2 works. As you advance, you'll build your practical skills by working on two real-life projects (preparing data, training models, fine-tuning models, and deployments) for object detection and instance segmentation tasks using Detectron2. Finally, you'll deploy Detectron2 models into production and develop Detectron2 applications for mobile devices. By the end of this deep learning book, you'll have gained sound theoretical knowledge and useful hands-on skills to help you solve advanced computer vision tasks using Detectron2. What You Will Learn: Build computer vision

applications using existing models in Detectron2 Grasp the concepts underlying Detectron2's architecture and components Develop real-life projects for object detection and object segmentation using Detectron2 Improve model accuracy using Detectron2's performance-tuning techniques Deploy Detectron2 models into server environments with ease Develop and deploy Detectron2 models into browser and mobile environments Who this book is for: If you are a deep learning application developer, researcher, or software developer with some prior knowledge about deep learning, this book is for you to get started and develop deep learning models for computer vision applications. Even if you are an expert in computer vision and curious about the features of Detectron2, or you would like to learn some cutting-edge deep learning design patterns, you will find this book helpful. Some HTML, Android, and C++ programming skills are advantageous if you want to deploy computer vision applications using these platforms.

TensorFlow 2.0 Computer Vision Cookbook Packt Publishing Ltd Implement supervised and unsupervised machine learning algorithms using C++ libraries such as PyTorch C++ API, Caffe2, Shogun, Shark-ML, mlpack, and dlib with the help of real-world examples and datasets Key Features Become familiar with data processing, performance measuring, and model selection using various C++ libraries Implement practical machine learning and deep learning techniques to build smart models Deploy machine learning models to work on mobile and embedded devices Book Description C++ can make your machine learning models run faster and more efficiently. This handy guide will help you learn the fundamentals of machine learning (ML), showing you how to use C++ libraries to get the most out of your data. This book makes machine learning with C++ for beginners easy with its example-based approach, demonstrating how to implement supervised and unsupervised ML algorithms through real-world examples. This book will get you hands-on with tuning and optimizing a model for different use cases, assisting you with model selection and the measurement of performance. You'll cover techniques such as product recommendations, ensemble learning, and anomaly detection using modern C++ libraries such as PyTorch C++ API, Caffe2, Shogun, Shark-ML, mlpack, and dlib. Next, you'll explore neural networks and deep learning using examples such as image classification and sentiment analysis,

which will help you solve various problems. Later, you'll learn how to handle production and deployment challenges on mobile and cloud platforms, before discovering how to export and import models using the ONNX format. By the end of this C++ book, you will have real-world machine learning and C++ knowledge, as well as the skills to use C++ to build powerful ML systems. What you will learn Explore how to load and preprocess various data types to suitable C++ data structures Employ key machine learning algorithms with various C++ libraries Understand the grid-search approach to find the best parameters for a machine learning model Implement an algorithm for filtering anomalies in user data using Gaussian distribution Improve collaborative filtering to deal with dynamic user preferences Use C++ libraries and APIs to manage model structures and parameters Implement a C++ program to solve image classification tasks with LeNet architecture Who this book is for You will find this C++ machine learning book useful if you want to get started with machine learning algorithms and techniques using the popular C++ language. As well as being a useful first course in machine learning with C++, this book will also appeal to data analysts, data scientists, and machine learning developers who are looking to implement different machine learning models in production using varied datasets and examples. Working knowledge of the C++ programming language is mandatory to get started with this book.

Hands-On Computer Vision with TensorFlow 2 Packt Publishing Ltd Organizations spend huge resources in developing software that can perform the way a human does. Image classification, object detection and tracking, pose estimation, facial recognition, and sentiment estimation all play a major role in solving computer vision problems. This book will bring into focus these and other deep learning architectures and techniques to help you create solutions using Keras and the TensorFlow library. You'll also review multiple neural network architectures, including LeNet, AlexNet, VGG, Inception, R-CNN, Fast R-CNN, Faster R-CNN, Mask R-CNN, YOLO, and SqueezeNet and see how they work alongside Python code via best practices, tips, tricks, shortcuts, and pitfalls. All code snippets will be broken down and discussed thoroughly so you can implement the same principles in your respective environments. *Computer Vision Using Deep Learning* offers a comprehensive yet succinct guide that stitches DL and CV

together to automate operations, reduce human intervention, increase capability, and cut the costs. What You'll Learn Examine deep learning code and concepts to apply guiding principals to your own projects Classify and evaluate various architectures to better understand your options in various use cases Go behind the scenes of basic deep learning functions to find out how they work Who This Book Is For Professional practitioners working in the fields of software engineering and data science. A working knowledge of Python is strongly recommended. Students and innovators working on advanced degrees in areas related to computer vision and Deep Learning.

Machine Learning for OpenCV Packt Publishing Ltd

Learn how to model and train advanced neural networks to implement a variety of Computer Vision tasks Key Features Train different kinds of deep learning model from scratch to solve specific problems in Computer Vision Combine the power of Python, Keras, and TensorFlow to build deep learning models for object detection, image classification, similarity learning, image captioning, and more Includes tips on optimizing and improving the performance of your models under various constraints Book Description Deep learning has shown its power in several application areas of Artificial Intelligence, especially in Computer Vision. Computer Vision is the science of understanding and manipulating images, and finds enormous applications in the areas of robotics, automation, and so on. This book will also show you, with practical examples, how to develop Computer Vision applications by leveraging the power of deep learning. In this book, you will learn different techniques related to object classification, object detection, image segmentation, captioning, image generation, face analysis, and more. You will also explore their applications using popular Python libraries such as TensorFlow and Keras. This book will help you master state-of-the-art, deep learning algorithms and their implementation. What you will learn Set up an environment for deep learning with Python, TensorFlow, and Keras Define and train a model for image and video classification Use features from a pre-trained Convolutional Neural Network model for image retrieval Understand and implement object detection using the real-world Pedestrian Detection scenario Learn about various problems in image captioning and how to overcome them by training images and text together Implement similarity matching and train a

model for face recognition Understand the concept of generative models and use them for image generation Deploy your deep learning models and optimize them for high performance Who

this book is for This book is targeted at data scientists and Computer Vision practitioners who wish to apply the concepts of Deep Learning to overcome any problem related to Computer

Vision. A basic knowledge of programming in Python—and some understanding of machine learning concepts—is required to get the best out of this book.