

# Emgu Cv Essentials

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*Advanced Sensing in Image Processing and IoT* -  
Rashmi Gupta 2021-03-26

The book provides future research directions in IoT and image processing based Energy, Industry, and Healthcare domain and explores the different applications of its associated technologies. However, the Internet of Things and image processing is a very big field with a lot

of subfields, which are very important such as Smart Homes to improve our daily life, Smart Cities to improve the citizens' life, Smart Towns to recover the livability and traditions, Smart Earth to protect our world, and Industrial Internet of Things to create safer and easier jobs. This book considers very important research areas in Energy, Industry, and Healthcare domain with IoT

and image processing applications. The aim of the book to highlights future directions of optimization methods in various engineering and science applications in various IoT and image processing applications. Emphasis is given to deep learning and similar models of neural network-based learning techniques employed in solving optimization problems of different engineering and science applications. The role of AI in mechatronics is also highlighted using suitable optimization methods. This book considers very important research areas in Energy, Industry, and Healthcare. It addresses major issues and challenges in Energy, Industry, and Healthcare and solutions proposed for IoT-enabled cellular/computer networks, routing/communication protocols, surveillances applications, secured data management, and positioning approaches. It focuses mainly on smart and context-aware implementations. Key sailing Features: The impact of the proposed book is to provide a major area of concern to

develop a foundation for the implementation process of new image processing and IoT devices based on Energy, Industry, and Healthcare related technology. The researchers working on image processing and IoT devices can correlate their work with other requirements of advanced technology in Energy, Industry, and Healthcare domain. To make aware of the latest technology like AI and Machine learning in Energy, Industry, and Healthcare related technology. Useful for the researcher to explore new things like Security, cryptography, and privacy in Energy, Industry, and Healthcare related technology. People who want to start in Energy, Industry, and Healthcare related technology with image processing and IoT world.

**Essential OpenCV Programming** - 2009

[OpenCV 3 Computer Vision with Python Cookbook](#) - Aleksei Spizhevoi 2018-03-23  
Recipe-based approach to tackle the most common problems in Computer Vision by

leveraging the functionality of OpenCV using Python APIs

**Key Features**

- Build computer vision applications with OpenCV functionality via Python API
- Get to grips with image processing, multiple view geometry, and machine learning
- Learn to use deep learning models for image classification, object detection, and face recognition

**Book Description** OpenCV 3 is a native cross-platform library for computer vision, machine learning, and image processing. OpenCV's convenient high-level APIs hide very powerful internals designed for computational efficiency that can take advantage of multicore and GPU processing. This book will help you tackle increasingly challenging computer vision problems by providing a number of recipes that you can use to improve your applications. In this book, you will learn how to process an image by manipulating pixels and analyze an image using histograms. Then, we'll show you how to apply image filters to enhance image content and exploit the image geometry in order to relay

different views of a pictured scene. We'll explore techniques to achieve camera calibration and perform a multiple-view analysis. Later, you'll work on reconstructing a 3D scene from images, converting low-level pixel information to high-level concepts for applications such as object detection and recognition. You'll also discover how to process video from files or cameras and how to detect and track moving objects. Finally, you'll get acquainted with recent approaches in deep learning and neural networks. By the end of the book, you'll be able to apply your skills in OpenCV to create computer vision applications in various domains. What you will learn

- Get familiar with low-level image processing methods
- See the common linear algebra tools needed in computer vision
- Work with different camera models and epipolar geometry
- Find out how to detect interesting points in images and compare them
- Binarize images and mask out regions of interest
- Detect objects and track them in videos

Who this book is for This book is for

developers who have a basic knowledge of Python. If you are aware of the basics of OpenCV and are ready to build computer vision systems that are smarter, faster, more complex, and more practical than the competition, then this book is for you.

**Advances in Smart Vehicular Technology, Transportation, Communication and Applications** - Jeng-Shyang Pan 2017-11-01

This book presents papers from the First International Conference on Smart Vehicular Technology, Transportation, Communication and Applications (VTCA 2017). Held from 6 to 8 November 2017 in Kaohsiung, Taiwan, the conference was co-sponsored by Springer, Fujian University of Technology in China, Fujian Provincial Key Laboratory of Digital Equipment, Fujian Provincial Key Lab of Big Data Mining and Applications, and National Kaohsiung University of Applied Sciences in Taiwan. The book is a valuable resource for researchers and professionals engaged in all areas of smart

vehicular technology, vehicular transportation, vehicular communication, and applications.

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

Design and develop advanced computer vision projects using OpenCV with Python About This Book Program advanced computer vision applications in Python using different features of the OpenCV library Practical end-to-end project covering an important computer vision problem All projects in the book include a step-by-step guide to create computer vision applications Who This Book Is For This book is for intermediate users of OpenCV who aim to master their skills by developing advanced practical applications. Readers are expected to be familiar with OpenCV's concepts and Python libraries. Basic knowledge of Python programming is expected and assumed. What You Will Learn Generate real-time visual effects using different filters and image manipulation techniques such as dodging and burning Recognize hand gestures in real

time and perform hand-shape analysis based on the output of a Microsoft Kinect sensor Learn feature extraction and feature matching for tracking arbitrary objects of interest Reconstruct a 3D real-world scene from 2D camera motion and common camera reprojection techniques Track visually salient objects by searching for and focusing on important regions of an image Detect faces using a cascade classifier and recognize emotional expressions in human faces using multi-layer perceptrons (MLPs) Recognize street signs using a multi-class adaptation of support vector machines (SVMs) Strengthen your OpenCV2 skills and learn how to use new OpenCV3 features In Detail OpenCV is a native cross platform C++ Library for computer vision, machine learning, and image processing. It is increasingly being adopted in Python for development. OpenCV has C++/C, Python, and Java interfaces with support for Windows, Linux, Mac, iOS, and Android. Developers using OpenCV build applications to process visual data; this can

include live streaming data from a device like a camera, such as photographs or videos. OpenCV offers extensive libraries with over 500 functions This book demonstrates how to develop a series of intermediate to advanced projects using OpenCV and Python, rather than teaching the core concepts of OpenCV in theoretical lessons. Instead, the working projects developed in this book teach the reader how to apply their theoretical knowledge to topics such as image manipulation, augmented reality, object tracking, 3D scene reconstruction, statistical learning, and object categorization. By the end of this book, readers will be OpenCV experts whose newly gained experience allows them to develop their own advanced computer vision applications. Style and approach This book covers independent hands-on projects that teach important computer vision concepts like image processing and machine learning for OpenCV with multiple examples.

Social Transformation – Digital Way - Jyotsna

Kumar Mandal 2018-08-23

This book constitutes the refereed proceedings of the 52nd Annual Convention of the Computer Society of India, CSI 2017, held in Kolkata, India, in January 2018. The 59 revised papers presented were carefully reviewed and selected from 157 submissions. The theme of CSI 2017, Social Transformation – Digital Way, was selected to highlight the importance of technology for both central and state governments at their respective levels to achieve doorstep connectivity with its citizens. The papers are organized in the following topical sections: Signal processing, microwave and communication engineering; circuits and systems; data science and data analytics; bio computing; social computing; mobile, nano, quantum computing; data mining; security and forensics; digital image processing; and computational intelligence.

**Recent Advances in Internet of Things and Machine Learning** - Valentina E. Balas

2022-02-14

This book covers a domain that is significantly impacted by the growth of soft computing. Internet of Things (IoT)-related applications are gaining much attention with more and more devices which are getting connected, and they become the potential components of some smart applications. Thus, a global enthusiasm has sparked over various domains such as health, agriculture, energy, security, and retail. So, in this book, the main objective is to capture this multifaceted nature of IoT and machine learning in one single place. According to the contribution of each chapter, the book also provides a future direction for IoT and machine learning research. The objectives of this book are to identify different issues, suggest feasible solutions to those identified issues, and enable researchers and practitioners from both academia and industry to interact with each other regarding emerging technologies related to IoT and machine learning. In this book, we look for novel chapters that recommend new methodologies,



international arena, cross-border mergers and acquisitions continue to proliferate as companies seek to maximize global market opportunities. Whether the transaction be strategic or opportunistic, transformational or conventional expansion, third party or internal value-enhancing restructuring, it is crucial for management and counsel to develop a working knowledge of the salient features of the relevant tax law in a broad range of global jurisdictions. This book, now in its fifth edition, distils knowledge of the tax aspects involved in such transactions across international borders. What's in this book: This book considers each jurisdiction's handling of areas of concern in international tax planning such as: - entity classification; - structuring taxable transactions; - structuring tax-free transactions (both in domestic and cross-border transactions); - loss planning; - IP planning; - compensation arrangements; - acquisition financing; - joint venture planning; - value added tax issues; and -

tax treaty usage. The experts in each country suggest solutions designed to maximize effective tax planning and satisfy compliance obligations. How this will help you: This user-friendly work assists in planning and evaluating strategies for transactions, both nationally and internationally, in single and multiple jurisdictions, as well as in implementing them. This book further allows an easy comparison of key tax aspects in major jurisdictions, thereby providing not only an easy understanding of the key structuring points in context but also critical issue-spotting as well as highlighting potential value-enhancing strategies. Addressing an important information gap in an area of widespread commercial concern, this resource helps international tax counsel, corporate and financial services attorneys, and corporate planning and compliance professionals to confidently approach challenging situations in both national and international regime. Editors: Peter H. Blessing and Ansgar A. Simon

**Soft Computing in Smart Manufacturing -**



Tatjana Sibalija 2021-12-06

This book aims at addressing the challenges of contemporary manufacturing in Industry 4.0 environment and future manufacturing (aka Industry 5.0), by implementing soft computing as one of the major sub-fields of artificial intelligence. It contributes to development and application of the soft computing systems, including links to hardware, software and enterprise systems, in resolving modern manufacturing issues in complex, highly dynamic and globalized industrial circumstances. It embraces heterogeneous complementary aspects, such as control, monitoring and modeling of different manufacturing tasks, including intelligent robotic systems and processes, addressed by various machine learning and fuzzy techniques; modeling and parametric optimization of advanced conventional and non-conventional, eco-friendly manufacturing processes by using machine learning and evolutionary computing techniques;

cybersecurity framework for Internet of Things-based systems addressing trustworthiness and resilience in machine-to-machine and human-machine collaboration; static and dynamic digital twins integration and synchronization in a smart factory environment; STEP-NC technology for a smart machine vision system, and integration of Open CNC with Service-Oriented Architecture for STEP-NC monitoring system in a smart manufacturing. Areas of interest include but are not limited to applications of soft computing to address the following: dynamic process/system modeling and simulation, dynamic process/system parametric optimization, dynamic planning and scheduling, smart, predictive maintenance, intelligent and autonomous systems, improved machine cognition, effective digital twins integration, human-machine collaboration, robots, and cobots.

*The Winning CV* - Sharon Khosa 2020-12-07

If there is one underutilized tool in life, it is the

Curriculum Vitae. The Winning CV is here to change all that. Your CV is a key tool that should be designed to unleash your potential and to open many doors leading to opportunities. With this book as your guide, you will brand yourself to win in the job market, earn competitive advantage, showcase your skills, get invited to that much needed interview and work your way to a promotion BUT most importantly, live a life driven by Purpose. Claim back the advantage of the power that your CV holds, by designing an immensely powerful CV.

### **Machine Learning for OpenCV** - Michael

Beyeler 2017-07-14

Expand your OpenCV knowledge and master key concepts of machine learning using this practical, hands-on guide. About This Book Load, store, edit, and visualize data using OpenCV and Python Grasp the fundamental concepts of classification, regression, and clustering Understand, perform, and experiment with machine learning techniques using this easy-to-follow guide

Evaluate, compare, and choose the right algorithm for any task Who This Book Is For This book targets Python programmers who are already familiar with OpenCV; this book will give you the tools and understanding required to build your own machine learning systems, tailored to practical real-world tasks. What You Will Learn Explore and make effective use of OpenCV's machine learning module Learn deep learning for computer vision with Python Master linear regression and regularization techniques Classify objects such as flower species, handwritten digits, and pedestrians Explore the effective use of support vector machines, boosted decision trees, and random forests Get acquainted with neural networks and Deep Learning to address real-world problems Discover hidden structures in your data using k-means clustering Get to grips with data pre-processing and feature engineering In Detail Machine learning is no longer just a buzzword, it is all around us: from protecting your email, to automatically tagging

friends in pictures, to predicting what movies you like. Computer vision is one of today's most exciting application fields of machine learning, with Deep Learning driving innovative systems such as self-driving cars and Google's DeepMind. OpenCV lies at the intersection of these topics, providing a comprehensive open-source library for classic as well as state-of-the-art computer vision and machine learning algorithms. In combination with Python Anaconda, you will have access to all the open-source computing libraries you could possibly ask for. Machine learning for OpenCV begins by introducing you to the essential concepts of statistical learning, such as classification and regression. Once all the basics are covered, you will start exploring various algorithms such as decision trees, support vector machines, and Bayesian networks, and learn how to combine them with other OpenCV functionality. As the book progresses, so will your machine learning skills, until you are ready to take on today's hottest topic in the field: Deep

Learning. By the end of this book, you will be ready to take on your own machine learning problems, either by building on the existing source code or developing your own algorithm from scratch! Style and approach OpenCV machine learning connects the fundamental theoretical principles behind machine learning to their practical applications in a way that focuses on asking and answering the right questions. This book walks you through the key elements of OpenCV and its powerful machine learning classes, while demonstrating how to get to grips with a range of models.

*Mixed Reality and Three-Dimensional Computer Graphics* - Branislav Sobota 2020-10-14

Mixed reality is an area of computer research that deals with the combination of real-world and computer-generated data, where computer-generated objects are visually mixed into the real environment and vice versa in real time. It is the newest virtual reality technology. It usually uses 3D computer graphics technologies for visual

presentation of the virtual world. The mixed reality can be created using the following technologies: augmented reality and augmented virtuality. Mixed and virtual reality, their applications, 3D computer graphics and related technologies in their actual stage are the content of this book. 3D-modeling in virtual reality, a stereoscopy, and 3D solids reconstruction are presented in the first part. The second part contains examples of the applications of these technologies, in industrial, medical, and educational areas.

**Proceedings of Third Doctoral Symposium on Computational Intelligence** - Ashish Khanna 2022-11-09

This book features high-quality research papers presented at Third Doctoral Symposium on Computational Intelligence (DoSCI 2022), organized by Institute of Engineering and Technology (IET), AKTU, Lucknow, India, on March 5, 2022. This book discusses the topics such as computational intelligence, artificial

intelligence, deep learning, evolutionary algorithms, swarm intelligence, fuzzy sets and vague sets, rough set theoretic approaches, quantum inspired computational intelligence, hybrid computational intelligence, machine learning, computer vision, soft computing, distributed computing, parallel and grid computing, cloud computing, high performance computing, biomedical computing, and decision support and decision making.

[OpenCV 3 Blueprints](#) - Joseph Howse 2015-11-10  
Expand your knowledge of computer vision by building amazing projects with OpenCV 3 About This Book Build computer vision projects to capture high-quality image data, detect and track objects, process the actions of humans or animals, and much more Discover practical and interesting innovations in computer vision while building atop a mature open-source library, OpenCV 3 Familiarize yourself with multiple approaches and theories wherever critical decisions need to be made Who This Book Is For

This book is ideal for you if you aspire to build computer vision systems that are smarter, faster, more complex, and more practical than the competition. This is an advanced book intended for those who already have some experience in setting up an OpenCV development environment and building applications with OpenCV. You should be comfortable with computer vision concepts, object-oriented programming, graphics programming, IDEs, and the command line. What You Will Learn Select and configure camera systems to see invisible light, fast motion, and distant objects Build a “camera trap”, as used by nature photographers, and process photos to create beautiful effects Develop a facial expression recognition system with various feature extraction techniques and machine learning methods Build a panorama Android application using the OpenCV stitching module in C++ with NDK support Optimize your object detection model, make it rotation invariant, and apply scene-specific constraints to make it faster

and more robust Create a person identification and registration system based on biometric properties of that person, such as their fingerprint, iris, and face Fuse data from videos and gyroscopes to stabilize videos shot from your mobile phone and create hyperlapse style videos In Detail Computer vision is becoming accessible to a large audience of software developers who can leverage mature libraries such as OpenCV. However, as they move beyond their first experiments in computer vision, developers may struggle to ensure that their solutions are sufficiently well optimized, well trained, robust, and adaptive in real-world conditions. With sufficient knowledge of OpenCV, these developers will have enough confidence to go about creating projects in the field of computer vision. This book will help you tackle increasingly challenging computer vision problems that you may face in your careers. It makes use of OpenCV 3 to work around some interesting projects. Inside these pages, you will find

practical and innovative approaches that are battle-tested in the authors' industry experience and research. Each chapter covers the theory and practice of multiple complementary approaches so that you will be able to choose wisely in your future projects. You will also gain insights into the architecture and algorithms that underpin OpenCV's functionality. We begin by taking a critical look at inputs in order to decide which kinds of light, cameras, lenses, and image formats are best suited to a given purpose. We proceed to consider the finer aspects of computational photography as we build an automated camera to assist nature photographers. You will gain a deep understanding of some of the most widely applicable and reliable techniques in object detection, feature selection, tracking, and even biometric recognition. We will also build Android projects in which we explore the complexities of camera motion: first in panoramic image stitching and then in video stabilization. By the

end of the book, you will have a much richer understanding of imaging, motion, machine learning, and the architecture of computer vision libraries and applications! Style and approach This book covers a combination of theory and practice. We examine blueprints for specific projects and discuss the principles behind these blueprints, in detail.

**Mastering OpenCV 4** - Roy Shilkrot 2018-12-27  
Work on practical computer vision projects covering advanced object detector techniques and modern deep learning and machine learning algorithms  
Key Features  
Learn about the new features that help unlock the full potential of OpenCV 4  
Build face detection applications with a cascade classifier using face landmarks  
Create an optical character recognition (OCR) model using deep learning and convolutional neural networks  
Book Description  
Mastering OpenCV, now in its third edition, targets computer vision engineers taking their first steps toward mastering OpenCV. Keeping the mathematical

formulations to a solid but bare minimum, the book delivers complete projects from ideation to running code, targeting current hot topics in computer vision such as face recognition, landmark detection and pose estimation, and number recognition with deep convolutional networks. You'll learn from experienced OpenCV experts how to implement computer vision products and projects both in academia and industry in a comfortable package. You'll get acquainted with API functionality and gain insights into design choices in a complete computer vision project. You'll also go beyond the basics of computer vision to implement solutions for complex image processing projects. By the end of the book, you will have created various working prototypes with the help of projects in the book and be well versed with the new features of OpenCV4. What you will learn

Build real-world computer vision problems with working OpenCV code samples  
Uncover best practices in engineering and maintaining OpenCV

projects  
Explore algorithmic design approaches for complex computer vision tasks  
Work with OpenCV's most updated API (v4.0.0) through projects  
Understand 3D scene reconstruction and Structure from Motion (SfM)  
Study camera calibration and overlay AR using the ArUco Module  
Who this book is for  
This book is for those who have a basic knowledge of OpenCV and are competent C++ programmers. You need to have an understanding of some of the more theoretical/mathematical concepts, as we move quite quickly throughout the book.

**Emgu CV Essentials** - 2013

**Learning OpenCV** - Gary Bradski 2008-09-24  
"This library is useful for practitioners, and is an excellent tool for those entering the field: it is a set of computer vision algorithms that work as advertised."-William T. Freeman, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology  
Learning OpenCV puts you in the middle of the rapidly

expanding field of computer vision. Written by the creators of the free open source OpenCV library, this book introduces you to computer vision and demonstrates how you can quickly build applications that enable computers to "see" and make decisions based on that data. Computer vision is everywhere-in security systems, manufacturing inspection systems, medical image analysis, Unmanned Aerial Vehicles, and more. It stitches Google maps and Google Earth together, checks the pixels on LCD screens, and makes sure the stitches in your shirt are sewn properly. OpenCV provides an easy-to-use computer vision framework and a comprehensive library with more than 500 functions that can run vision code in real time. Learning OpenCV will teach any developer or hobbyist to use the framework quickly with the help of hands-on exercises in each chapter. This book includes: A thorough introduction to OpenCV Getting input from cameras Transforming images Segmenting images and

shape matching Pattern recognition, including face detection Tracking and motion in 2 and 3 dimensions 3D reconstruction from stereo vision Machine learning algorithms Getting machines to see is a challenging but entertaining goal. Whether you want to build simple or sophisticated vision applications, Learning OpenCV is the book you need to get started. **OpenCV 4 with Python Blueprints** - Dr. Menua Gevorgyan 2020-03-20 Get to grips with traditional computer vision algorithms and deep learning approaches, and build real-world applications with OpenCV and other machine learning frameworks Key Features Understand how to capture high-quality image data, detect and track objects, and process the actions of animals or humans Implement your learning in different areas of computer vision Explore advanced concepts in OpenCV such as machine learning, artificial neural network, and augmented reality Book Description OpenCV is a native cross-platform C++ library for computer



vision, machine learning, and image processing. It is increasingly being adopted in Python for development. This book will get you hands-on with a wide range of intermediate to advanced projects using the latest version of the framework and language, OpenCV 4 and Python 3.8, instead of only covering the core concepts of OpenCV in theoretical lessons. This updated second edition will guide you through working on independent hands-on projects that focus on essential OpenCV concepts such as image processing, object detection, image manipulation, object tracking, and 3D scene reconstruction, in addition to statistical learning and neural networks. You'll begin with concepts such as image filters, Kinect depth sensor, and feature matching. As you advance, you'll not only get hands-on with reconstructing and visualizing a scene in 3D but also learn to track visually salient objects. The book will help you further build on your skills by demonstrating how to recognize traffic signs and emotions on faces. Later, you'll understand how

to align images, and detect and track objects using neural networks. By the end of this OpenCV Python book, you'll have gained hands-on experience and become proficient at developing advanced computer vision apps according to specific business needs. What you will learn

- Generate real-time visual effects using filters and image manipulation techniques such as dodging and burning
- Recognize hand gestures in real-time and perform hand-shape analysis based on the output of a Microsoft Kinect sensor
- Learn feature extraction and feature matching to track arbitrary objects of interest
- Reconstruct a 3D real-world scene using 2D camera motion and camera reprojection techniques
- Detect faces using a cascade classifier and identify emotions in human faces using multilayer perceptrons
- Classify, localize, and detect objects with deep neural networks

Who this book is for This book is for intermediate-level OpenCV users who are looking to enhance their skills by developing advanced applications. Familiarity with OpenCV

concepts and Python libraries, and basic knowledge of the Python programming language are assumed.

Systems, Signals and Image Processing - Gregor Rozinaj 2022-03-01

This volume constitutes selected papers presented at the 28th International Conference on Systems, Signals and Image Processing, IWSSIP 2021, held in Bratislava, Slovakia, in June 2021. Due to the COVID-19 pandemic the conference was held online. The presented 14 full and 5 short papers were thoroughly reviewed and selected from the 76 submissions. The papers focus on various aspects of advanced signal processing in different scientific areas, including filter design, Fourier and other transforms, feature extraction, machine learning and system adaptation to user-oriented products like 5G networks, IoT, virtual teleport or tele-surgery operations.

**Emgu CV Essentials** - Shin Shi 2013-11

This book provides a practical guide to Emgu CV

libraries, with sample code and examples used throughout to explain the concepts clearly. Each chapter deals with a different aspect of the Computer Vision field and the implementation of that topic in Emgu CV. If you are a C# programmer working on computer vision projects, this book is for you. You should have prior experience with C#.

**OpenCV Essentials** - Oscar Deniz Suarez 2014-08-25

This book is intended for C++ developers who want to learn how to implement the main techniques of OpenCV and get started with it quickly. Working experience with computer vision / image processing is expected.

**The New Principia** - Dr. John Yates 2018-12-04

The New Principia Book 1 deals with the start of the New Principia — important scientific work — related to questions such as “How to find God,” “How to travel in Time”, “Travels in Outer Space” plus "Resolving the Andromeda Paradox" and more with proper explanations and some working

methods for handling Ouija Boards, Near Death Experiences, Astral Projection, Hypnosis, Consciousness, Super-intelligent Machines and others. With *The New Principia*, the sky is not the limit.

*Automated Systems in the Aviation and Aerospace Industries* - Shmelova, Tetiana  
2019-03-22

Air traffic controllers need advanced information and automated systems to provide a safe environment for everyone traveling by plane. One of the primary challenges in developing training for automated systems is to determine how much a trainee will need to know about the underlying technologies to use automation safely and efficiently. To ensure safety and success, task analysis techniques should be used as the basis of the design for training in automated systems in the aviation and aerospace industries. *Automated Systems in the Aviation and Aerospace Industries* is a pivotal reference source that provides vital research on the

application of underlying technologies used to enforce automation safety and efficiency. While highlighting topics such as expert systems, text mining, and human-machine interface, this publication explores the concept of constructing navigation algorithms, based on the use of video information and the methods of the estimation of the availability and accuracy parameters of satellite navigation. This book is ideal for aviation professionals, researchers, and managers seeking current research on information technology used to reduce the risk involved in aviation.

*OpenCV for Secret Agents* - Joseph Howse  
2015-01-28

This book is for programmers who want to expand their skills by building fun, smart, and useful systems with OpenCV. The projects are ideal in helping you to think creatively about the uses of computer vision, natural user interfaces, and ubiquitous computers (in your home, car, and hand).

*Emgu CV Essentials* - Shin Shi 2013

**Learning Image Processing with OpenCV** -  
Gloria Bueno Garcia 2015

If you are a competent C++ programmer and want to learn the tricks of image processing with OpenCV, then this book is for you. A basic understanding of image processing is required.

**Bonita Open Solution 5.x Essentials** - Rohit Bhat 2013-11-15

A practical, intuitive guide for modeling complex business processes as full-scale applications using the ease and power of Bonita Open Solution. If you are a business application developer looking forward to model business processes intuitively in a workflow, with various conditions and transitions then this book is for you. Basic knowledge of Java or Groovy is necessary to help you develop these applications. Knowledge of HTML and JavaScript/JQuery will be helpful but not mandatory.

**VI Latin American Congress on Biomedical Engineering CLAIB 2014, Paraná, Argentina 29, 30 & 31 October 2014** - Ariel Braidot 2015-03-13

This volume presents the proceedings of the CLAIB 2014, held in Paraná, Entre Ríos, Argentina 29, 30 & 31 October 2014. The proceedings, presented by the Regional Council of Biomedical Engineering for Latin America (CORAL) offer research findings, experiences and activities between institutions and universities to develop Bioengineering, Biomedical Engineering and related sciences. The conferences of the American Congress of Biomedical Engineering are sponsored by the International Federation for Medical and Biological Engineering (IFMBE), Society for Engineering in Biology and Medicine (EMBS) and the Pan American Health Organization (PAHO), among other organizations and international agencies and bringing together scientists, academics and biomedical engineers in Latin America and other continents in an

environment conducive to exchange and professional growth. The Topics include: - Bioinformatics and Computational Biology - Bioinstrumentation; Sensors, Micro and Nano Technologies - Biomaterials, Tissue Engineering and Artificial Organs - Biomechanics, Robotics and Motion Analysis - Biomedical Images and Image Processing - Biomedical Signal Processing - Clinical Engineering and Electromedicine - Computer and Medical Informatics - Health and home care, telemedicine - Modeling and Simulation - Radiobiology, Radiation and Medical Physics - Rehabilitation Engineering and Prosthetics - Technology, Education and Innovation

*Technologies for Interactive Digital Storytelling and Entertainment* - Stefan Göbel 2006-11-27

This book constitutes the refereed proceedings of the Third International Conference on Technologies for Interactive Digital Storytelling and Entertainment, TIDSE 2006, held in Darmstadt, Germany in December 2006. It

contains 37 papers that cover a broad spectrum, from conceptual ideas, theories, and technological questions, to best practice examples in the different storytelling application domains, with a focus on entertainment and games.

**Cybernetics, Cognition and Machine Learning Applications** - Vinit Kumar Gunjan 2022-09-15

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

Digital Forensics and Internet of Things - Anita Gehlot 2022-04-19

DIGITAL FORENSICS AND INTERNET OF THINGS It

pays to be ahead of the criminal, and this book helps organizations and people to create a path to achieve this goal. The book discusses applications and challenges professionals encounter in the burgeoning field of IoT forensics. IoT forensics attempts to align its workflow to that of any forensics practice—investigators identify, interpret, preserve, analyze and present any relevant data. As with any investigation, a timeline is constructed, and, with the aid of smart devices providing data, investigators might be able to capture much more specific data points than in a traditional crime. However, collecting this data can often be a challenge, as it frequently doesn't live on the device itself, but rather in the provider's cloud platform. If you can get the data off the device, you'll have to employ one of a variety of methods given the diverse nature of IoT devices hardware, software, and firmware. So, while robust and insightful data is available, acquiring it is no small undertaking.

Digital Forensics and Internet of Things

encompasses: State-of-the-art research and standards concerning IoT forensics and traditional digital forensics Compares and contrasts IoT forensic techniques with those of traditional digital forensics standards Identifies the driving factors of the slow maturation of IoT forensic standards and possible solutions Applies recommended standards gathered from IoT forensic literature in hands-on experiments to test their effectiveness across multiple IoT devices Provides educated recommendations on developing and establishing IoT forensic standards, research, and areas that merit further study. Audience Researchers and scientists in forensic sciences, computer sciences, electronics engineering, embedded systems, information technology.

Oracle PL/SQL Language Pocket Reference - Steven Feuerstein 2015-09-09

Annotation This pocket reference condenses the most vital information from Oracle PL/SQL programming into an accessible quick reference

that summarises the basics of PL/SQL - block structure, fundamental language elements, data structures, control statements, and use of procedures, functions and packages.

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

Create advanced applications with Python and OpenCV, exploring the potential of facial recognition, machine learning, deep learning, web computing and augmented reality. Key Features Develop your computer vision skills by mastering algorithms in Open Source Computer Vision 4 (OpenCV 4) and Python Apply machine learning and deep learning techniques with TensorFlow and Keras Discover the modern design patterns you should avoid when developing efficient computer vision applications Book Description OpenCV is considered to be one of the best open source computer vision and machine learning software libraries. It helps developers build complete projects in relation to image processing, motion detection, or image

segmentation, among many others. OpenCV for Python enables you to run computer vision algorithms smoothly in real time, combining the best of the OpenCV C++ API and the Python language. In this book, you'll get started by setting up OpenCV and delving into the key concepts of computer vision. You'll then proceed to study more advanced concepts and discover the full potential of OpenCV. The book will also introduce you to the creation of advanced applications using Python and OpenCV, enabling you to develop applications that include facial recognition, target tracking, or augmented reality. Next, you'll learn machine learning techniques and concepts, understand how to apply them in real-world examples, and also explore their benefits, including real-time data production and faster data processing. You'll also discover how to translate the functionality provided by OpenCV into optimized application code projects using Python bindings. Toward the concluding chapters, you'll explore the

application of artificial intelligence and deep learning techniques using the popular Python libraries TensorFlow, and Keras. By the end of this book, you'll be able to develop advanced computer vision applications to meet your customers' demands. What you will learn Handle files and images, and explore various image processing techniques Explore image transformations, including translation, resizing, and cropping Gain insights into building histograms Brush up on contour detection, filtering, and drawing Work with Augmented Reality to build marker-based and markerless applications Work with the main machine learning algorithms in OpenCV Explore the deep learning Python libraries and OpenCV deep learning capabilities Create computer vision and deep learning web applications Who this book is for This book is designed for computer vision developers, engineers, and researchers who want to develop modern computer vision applications. Basic experience of OpenCV and Python

programming is a must.

Modern Approaches in Machine Learning & Cognitive Science: A Walkthrough - Vinit Kumar Gunjan 2022-04-22

This book provides a systematic and comprehensive overview of AI and machine learning which have got the ability to identify patterns in large and complex data sets. A remarkable success has been experienced in the last decade by emulating the brain computer interface. It presents the cognitive science methods and technologies that have played an important role at the core of practical solutions for a wide scope of tasks between handheld apps, industrial process control, autonomous vehicles, environmental policies, life sciences, playing computer games, computational theory, and engineering development. The chapters in this book focuses on audiences interested in machine learning, cognitive and neuro-inspired computational systems, their theories, mechanisms, and architecture, which underline



human and animal behaviour, and their application to conscious and intelligent systems. In the current version, it focuses on the successful implementation and step-by-step explanation of practical applications of the domain. It also offers a wide range of inspiring and interesting cutting-edge contributions on applications of machine learning and cognitive science such as healthcare products, medical electronics, and gaming.

*Fuzzy Computing in Data Science* - Sachi Nandan Mohanty 2022-11-03

**FUZZY COMPUTING IN DATA SCIENCE** This book comprehensively explains how to use various fuzzy-based models to solve real-time industrial challenges. The book provides information about fundamental aspects of the field and explores the myriad applications of fuzzy logic techniques and methods. It presents basic conceptual considerations and case studies of applications of fuzzy computation. It covers the fundamental concepts and techniques for system modeling,

information processing, intelligent system design, decision analysis, statistical analysis, pattern recognition, automated learning, system control, and identification. The book also discusses the combination of fuzzy computation techniques with other computational intelligence approaches such as neural and evolutionary computation. Audience Researchers and students in computer science, artificial intelligence, machine learning, big data analytics, and information and communication technology.

**OpenCV By Example** - Prateek Joshi 2016-01-22

Enhance your understanding of Computer Vision and image processing by developing real-world projects in OpenCV 3 About This Book Get to grips with the basics of Computer Vision and image processing This is a step-by-step guide to developing several real-world Computer Vision projects using OpenCV 3 This book takes a special focus on working with Tesseract OCR, a free, open-source library to recognize text in images Who This Book Is For If you are a software

developer with a basic understanding of Computer Vision and image processing and want to develop interesting Computer Vision applications with Open CV, this is the book for you. Knowledge of C++ is required. What You Will Learn Install OpenCV 3 on your operating system Create the required CMake scripts to compile the C++ application and manage its dependencies Get to grips with the Computer Vision workflows and understand the basic image matrix format and filters Understand the segmentation and feature extraction techniques Remove backgrounds from a static scene to identify moving objects for video surveillance Track different objects in a live video using various techniques Use the new OpenCV functions for text detection and recognition with Tesseract In Detail Open CV is a cross-platform, free-for-use library that is primarily used for real-time Computer Vision and image processing. It is considered to be one of the best open source libraries that helps developers focus on

constructing complete projects on image processing, motion detection, and image segmentation. Whether you are completely new to the concept of Computer Vision or have a basic understanding of it, this book will be your guide to understanding the basic OpenCV concepts and algorithms through amazing real-world examples and projects. Starting from the installation of OpenCV on your system and understanding the basics of image processing, we swiftly move on to creating optical flow video analysis or text recognition in complex scenes, and will take you through the commonly used Computer Vision techniques to build your own Open CV projects from scratch. By the end of this book, you will be familiar with the basics of Open CV such as matrix operations, filters, and histograms, as well as more advanced concepts such as segmentation, machine learning, complex video analysis, and text recognition. Style and approach This book is a practical guide with lots of tips, and is closely focused on

developing Computer vision applications with OpenCV. Beginning with the fundamentals, the complexity increases with each chapter. Sample applications are developed throughout the book that you can execute and use in your own projects.

**Sensor Projects with Raspberry Pi** - Guillermo Guillen 2019-12-17

Start solving world issues by beginning small with simple Raspberry Pi projects. Using a free IoT server; tackle fundamental topics and concepts behind the Internet of Things. Image processing and sensor topics aren't only applicable to the Raspberry Pi. The skills learned in this book can go on to other applications in mobile development and electrical engineering. Start by creating a system to detect movement through the use of a PIR motion sensor and a Raspberry Pi board. Then further your sensor systems by detecting more than simple motion. Use the MQ2 gas sensor and a Raspberry Pi board as a gas leak alarm system to detect dangerous explosive

and fire hazards. Train your system to send the captured data to the remote server ThingSpeak. When a gas increase is detected beyond a limit, then a message is sent to your Twitter account. Having started with ThingSpeak, we'll go on to develop a weather station with your Raspberry Pi. Using the DHT11 (humidity and temperature sensor) and BMP085 (barometric pressure and temperature sensor) in conjunction with ThingSpeak and Twitter, you can receive realtime weather alerts from your own meteorological system! Finally, expand your skills into the popular machine learning world of digital image processing using OpenCV and a Pi. Make your own object classifiers and finally manipulate an object by means of an image in movement. This skillset has many applications, ranging from recognizing people or objects, to creating your own video surveillance system. With the skills developed in this book, you will have everything you need to work in IoT projects for the Pi. You can then expand your skills out further to

develop mobile projects and delve into interactive systems such as those found in machine learning. What You'll Learn Work with ThingSpeak to receive Twitter alerts from your systems Cultivate skills in processing sensor inputs that are applicable to mobile and machine learning projects as well Incorporate sensors into projects to make devices that interact with more than just code Who This Book Is For Hobbyists and makers working robotics and Internet of Things areas will find this book a great resource for quick but expandable projects. Electronics engineers and programmers who would like to expand their familiarity with basic sensor projects will also find this book helpful.

**Proceedings of the International Conference on Applied CyberSecurity (ACS) 2021** - Hani Ragab Hassen 2022-02-01

Cybersecurity has gained in awareness and media coverage in the last decade. Not a single week passes without a major security incident that affects a company, sector, or governmental

agencies. This proceedings of the International Conference on Applied CyberSecurity 2021 (ACS21), held in Dubai on 13 and 14 November, contains thirteen original contributions. More than half of the contributions are about applications of machine learning to accomplish several cybersecurity tasks, such as malware, phishing email detection, and Botnet detection. This was consistent with the current research and market trends. We divided this book into two parts; the first is focused on machine learning applications to cybersecurity, whereas the second groups the other approaches. This book is suitable for cybersecurity researchers and practitioners as well as fresh graduates. It is also suitable for artificial intelligence researchers interested in exploring applications in cybersecurity.

**Human-Computer Interaction. Design Practice in Contemporary Societies** - Masaaki Kurosu 2019-07-10

The 3 volume-set LNCS 11566, 11567 + 11568

constitutes the refereed proceedings of the Human Computer Interaction thematic area of the 21st International Conference on Human-Computer Interaction, HCII 2019, which took place in Orlando, Florida, USA, in July 2019. A total of 1274 papers and 209 posters have been accepted for publication in the HCII 2019 proceedings from a total of 5029 submissions. The 125 papers included in this HCI 2019 proceedings were organized in topical sections as follows: Part I: design and evaluation methods

and tools; redefining the human in HCI; emotional design, Kansei and aesthetics in HCI; and narrative, storytelling, discourse and dialogue. Part II: mobile interaction; facial expressions and emotions recognition; eye-gaze, gesture and motion-based interaction; and interaction in virtual and augmented reality. Part III: design for social challenges; design for culture and entertainment; design for intelligent urban environments; and design and evaluation case studies.