

Methods and Applications in Digital Imaging and Computer Vision: A Comprehensive Guide

Digital imaging and computer vision are two rapidly growing fields that are transforming the way we see and interact with the world around us. These technologies are used in a wide range of applications, from medical imaging and autonomous driving to facial recognition and robotics.



Perceptual Digital Imaging: Methods and Applications (Digital Imaging and Computer Vision)

★★★★☆ 4 out of 5



This comprehensive guide provides an in-depth overview of the methods and applications of digital imaging and computer vision. Readers will learn about the fundamental principles of these technologies, as well as their practical applications in various industries.

Part 1: Digital Imaging

Chapter 1: Image Formation and Acquisition

* The process of image formation * Different types of image sensors *
Image acquisition devices * Image quality assessment

Chapter 2: Image Processing

* Basic image processing operations * Image enhancement techniques *
Image restoration techniques * Image segmentation techniques

Chapter 3: Image Analysis

* Image feature extraction * Image classification * Object detection and
recognition * Image segmentation

Part 2: Computer Vision

Chapter 4: Camera Calibration and 3D Reconstruction

* Camera calibration techniques * 3D reconstruction algorithms *
Applications in robotics and augmented reality

Chapter 5: Object Recognition and Tracking

* Object recognition algorithms * Object tracking algorithms * Applications
in surveillance and autonomous driving

Chapter 6: Image-Based Modeling and Rendering

* Image-based modeling techniques * Image-based rendering techniques *
Applications in virtual reality and computer graphics

Part 3: Applications

Chapter 7: Medical Imaging

* Medical imaging modalities * Image analysis for disease diagnosis and treatment planning * Applications in radiology, oncology, and cardiology

Chapter 8: Autonomous Driving

* Computer vision for obstacle detection and avoidance * Lane detection and tracking * Traffic sign recognition * Applications in self-driving cars and advanced driver assistance systems

Chapter 9: Facial Recognition and Biometrics

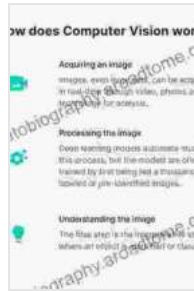
* Facial recognition algorithms * Biometric identification systems * Applications in security, law enforcement, and access control

Chapter 10: Robotics

* Computer vision for robot navigation and manipulation * Object manipulation and grasping * Applications in industrial automation and warehouse logistics

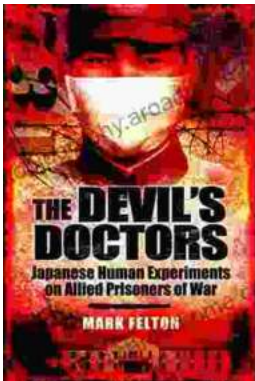
This guide provides a comprehensive overview of the methods and applications of digital imaging and computer vision. Readers will gain a deep understanding of these technologies and their potential to transform a wide range of industries.

Whether you are a student, researcher, or professional working in the field of digital imaging or computer vision, this guide is an essential resource for your library.



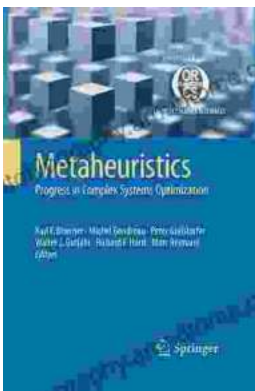
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