

1. Record Nr.	UNINA9911019607403321
Autore	Koschan Andreas <1956->
Titolo	Digital color image processing // Andreas Koschan, Mongi Abidi
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Interscience, c2008
ISBN	9786611373931 9781281373939 1281373931 9780470230367 0470230363 9780470230350 0470230355
Descrizione fisica	1 online resource (394 p.)
Altri autori (Persone)	AbidiMongi A
Disciplina	621.36/7
Soggetti	Image processing - Digital techniques Color
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Digital Color Image Processing; TABLE OF CONTENTS; Preface; Acknowledgment; 1 Introduction; 1.1 Goal and Content of this Book; 1.2 Terminology in Color Image Processing; 1.2.1 What Is a Digital Color Image?; 1.2.2 Derivative of a Color Image; 1.2.3 Color Edges; 1.2.4 Color Constancy; 1.2.5 Contrast of a Color Image; 1.2.6 Noise in Color Images; 1.2.7 Luminance, Illuminance, and Brightness; 1.3 Color Image Analysis in Practical Use; 1.3.1 Color Image Processing in Medical Applications; 1.3.2 Color Image Processing in Food Science and Agriculture 1.3.3 Color Image Processing in Industrial Manufacturing and Nondestructive Materials Testing 1.3.4 Additional Applications of Color Image Processing; 1.3.5 Digital Video and Image Databases; 1.4 Further Reading; 1.5 References; 2 Eye and Color; 2.1 Physiology of Color Vision; 2.2 Receptoral Color Information; 2.3 Postreceptoral Color Information; 2.3.1 Neurophysiology of Retinal Ganglia Cells; 2.3.2 Reaction of Retinal Ganglia Cells to Colored Light Stimuli; 2.4 Cortical Color Information; 2.5 Color Constant Perception and Retinex Theory;

2.6 References; 3 Color Spaces and Color Distances
3.1 Standard Color System
3.1.1 CIE Color Matching Functions; 3.1.2 Standard Color Values; 3.1.3 Chromaticity Diagrams; 3.1.4 MacAdam Ellipses; 3.2 Physics and Technics-Based Color Spaces; 3.2.1 RGB Color Spaces; 3.2.2 CMY(K) Color Space; 3.2.3 YIQ Color Space; 3.2.4 YUV Color Space; 3.2.5 YCBCR Color Space; 3.2.6 Kodak PhotoCD YC1C2 Color Space; 3.2.7 I1I2I3 Color Space; 3.3 Uniform Color Spaces; 3.3.1 CIELAB Color Space; 3.3.2 CIELUV Color Space; 3.4 Perception-Based Color Spaces; 3.4.1 HSI Color Space; 3.4.2 HSV Color Space; 3.4.3 Opponent Color Spaces; 3.5 Color Difference Formulas
3.5.1 Color Difference Formulas in the RGB Color Space
3.5.2 Color Difference Formulas in the HSI Color Space; 3.5.3 Color Difference Formulas in the CIELAB and CIELUV Color Spaces; 3.6 Color Ordering Systems; 3.6.1 Munsell Color System; 3.6.2 Macbeth ColorChecker; 3.6.3 DIN Color Map; 3.7 Further Reading; 3.8 References; 4 Color Image Formation; 4.1 Technical Design of Electronic Color Cameras; 4.1.1 Image Sensors; 4.1.2 Multispectral Imaging Using Black-and-white Cameras with Color Filters; 4.1.3 One-Chip CCD Color Camera; 4.1.4 Three-Chip CCD Color Cameras; 4.1.5 Digital Cameras
4.2 Standard Color Filters and Standard Illuminants
4.2.1 Standard Color Filters; 4.2.2 Standard Illuminants; 4.3 Photometric Sensor Model; 4.3.1 Attenuation, Clipping, and Blooming; 4.3.2 Chromatic Aberration; 4.3.3 Correction of the Chromatic Aberration; 4.4 Photometric and Colorimetric Calibration; 4.4.1 Nonlinearities of Camera Signals; 4.4.2 Measurement of Camera Linearity; 4.4.3 White Balance and Black-Level Determination; 4.4.4 Transformation into the Standard Color System XYZ; 4.5 Further Reading; 4.6 References; 5 Color Image Enhancement; 5.1 False Colors and Pseudocolors
5.2 Enhancement of Real Color Images

Sommario/riassunto

An introduction to color in three-dimensional image processing and the emerging area of multi-spectral image processing The importance of color information in digital image processing is greater than ever. However, the transition from scalar to vector-valued image functions has not yet been generally covered in most textbooks. Now, Digital Color Image Processing fills this pressing need with a detailed introduction to this important topic. In four comprehensive sections, this book covers: The fundamentals and requirements for color image processing from a vector-valued viewpoint<
