Digital Color Image Processing

By Andreas Koschan, Mongi Abidi

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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
- Techniques for preprocessing color images
- Three-dimensional scene analysis using color information, as well as the emerging area of multi-spectral imaging
- Applications of color image processing, presented via the examination of two case studies

In addition to introducing readers to important new technologies in the field, Digital Color Image Processing also contains novel topics such as: techniques for improving three-dimensional reconstruction, three-dimensional computer vision, and emerging areas of safety and security applications in luggage inspection and video surveillance of high-security facilities.

Complete with full-color illustrations and two applications chapters, Digital Color Image Processing is the only book that covers the breadth of the subject under one convenient cover. It is written at a level that is accessible for first- and second-year graduate students in electrical and computer engineering and computer science courses, and that is also appropriate for researchers who wish to extend their knowledge in the area of color image processing.

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Digital Color Image Processing By Andreas Koschan, Mongi Abidi Bibliography

- Rank: #5097911 in Books
- Published on: 2008-04-18
- Original language: English
- Number of items: 1
- Dimensions: 9.40" h x .90" w x 6.10" l, 1.41 pounds
- Binding: Hardcover
- 376 pages

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Editorial Review

Review
"This book is recommended for first and second-year graduate students in electrical and computing engineer and computer science courses, as well as for researchers with basic knowledge in image processing who wish to extend their knowledge in the area of color image processing." (*Blogcritics.org*, April 30, 2008)

From the Back Cover

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About the Author

Andreas Koschan, PhD, is a Research Associate Professor with the Department of Electrical Engineering and Computer Science, University of Tennessee. His research interests include three-dimensional computer vision and, in particular, shape recovery using binocular stereo vision and laser range-finding techniques. He is also interested in the utilization of color information in digital image processing. He is the coauthor of three other books.

Mongi Abidi, PhD, is a Professor and Associate Head in the Department of Electrical Engineering and Computer Science, University of Tennessee. Dr. Abidi directs activities in the Imaging, Robotics, and Intelligent Systems Laboratory, and conducts research in the field of three-dimensional imaging, specifically in the areas of scene building, scene description, and data visualization.

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