Machine Vision, Second Edition: Theory, Algorithms, Practicalities (Signal Processing and its Applications)

By E. R. Davies

Machine Vision, Second Edition: Theory, Algorithms, Practicalities (Signal Processing and its Applications) By E. R. Davies

The field of machine vision has expanded extensively since the First Edition of **Machine Vision** was published by Academic Press in 1990. As a result, this Second Edition contains significant amounts of new material on artificial neural networks, mathematical morphology, motion, invariance, texture analysis, x-ray inspection, and foreign object detection. Intermediate level vision is examined in depth (especially Hough transforms), and automated visual inspectionis discussed. The author takes care to consider theoretical aspects as well as practical applications, including perspective invariants and robust statistics. Written in a user-friendly style and full of up-to-date methods, **Machine Vision, Second Edition** will be an essential volume for students and professionals in the field.

Key Features
* Gives considerable emphasis to robust analysis of images to demonstrate how problems of occlusion, noise, distortion, and variability may be overcome
* Introduces Hough transforms as an integral part of the text and shows how they may be applied in a variety of situations
* Presents the topic of robust statistics non-mathematically in the context of vision algorithms
* Considers the role of neural networks in machine vision
* Shows how the concepts of perspective invariance provide basic strategies for 2-D and 3-D vision
* Studies image transformations and the prespective n-point problem systematically to clarify how interpretation may proceed in various geometrical situations
* Pays special attention to the detection of defects, foreign objects, and real-time implementation hardware in consideration of automated visual inspection

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Editorial Review

About the Author
Roy Davies is a Professor of Machine Vision at Royal Holloway, University of London, and has extensive experience of machine vision, image analysis, automated visual inspection, and noise suppression techniques. His book *Electronics, Noise, and Signal Recovery* was published in 1993 by Academic Press, and is a useful companion to the present volume.

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