DESCRIPTION

Object detection, tracking and recognition in images are key problems in computer vision. This book provides the reader with a balanced treatment between the theory and practice of selected methods in these areas to make the book accessible to a range of researchers, engineers, developers and postgraduate students working in computer vision and related fields.

Key features:

• Explains the main theoretical ideas behind each method (which are augmented with a rigorous mathematical derivation of the formulas), their implementation (in C++) and demonstrated working in real applications.

• Places an emphasis on tensor and statistical based approaches within object detection and recognition.

• Provides an overview of image clustering and classification methods which includes subspace and kernel based processing, mean shift and Kalman filter, neural networks, and k-means methods.

• Contains numerous case study examples of mainly automotive applications.

• Includes a companion website hosting full C++ implementation, of topics presented in the book as a software library, and an accompanying manual to the software platform.
Boguslaw Cyganek received his M.Sc. degree in electronics in 1993, then in computer science in 1996 from the AGH University of Science and Technology, Krakow, Poland. He obtained his Ph.D. degree cum laude in 2001 with a thesis on correlation of stereo images, and D.Sc. degree in 2011 with a thesis on methods and algorithms of object recognition in digital images. During the recent years, Dr. Boguslaw Cyganek has been cooperating with many scientific centers in development of computer vision systems. He has also gained several years of practical experience working as a Software Development Manager and a Senior Software Engineer both in the USA and Poland. He is currently a researcher and lecturer at the Department of Electronics, AGH University of Science and Technology. His research interests include computer vision, pattern recognition, as well as development of programmable devices and embedded systems. He is an author or a co-author of over eighty conference and journal papers and four books including *An Introduction to 3D Computer Vision Techniques and Algorithms* published by Wiley. Dr. Cyganek is a member of the IEEE, IAPR and SIAM.