

PREFACE

An image is worth more than ten thousand words - and for that reason Computer Vision has received enormous amounts of attention from several scientific and technological communities in the last decades. Computer Vision is defined as the process of extracting useful information from images in order to be able to perform other tasks.

An image usually contains a huge amount of information that can be utilized in various contexts. Depending on the particular application, one may be interested, for example, in salient features for object classification, texture properties, color information, or motion. The automated procedure of extracting meaningful information from an input image and deriving an abstract representation of its contents is the goal of Computer Vision and Image Analysis, which appears to be an essential processing stage for a number of applications such as medical image interpretation, video analysis, text understanding, security screening and surveillance, three-dimensional modelling, robot vision, as well as automatic vehicle or robot guidance.

This book provides a representative collection of papers describing advances in research and development in the fields of Computer Vision and Image Analysis, and their applications to different problems. It shows advanced techniques related to PDE's, wavelet analysis, deformable models, multiple classifiers, neural networks, fuzzy sets, optimization techniques, genetic programming, among others. It also includes valuable material on watermarking, image compression, image segmentation, handwritten text recognition, machine learning, motion tracking and segmentation, gesture recognition, biometrics, shadow detection, video processing, and others.

All contributions have been selected from the peer-reviewed international scientific journal ELCVIA (<http://elcvia.cvc.uab.es>). The contributing authors (as well as the reviewers) are all established researchers in the field and they provide a representative overview of the available techniques and applications of this broad and quickly emerging field.

The aim of this book is to provide an overview of recent progress in methods and applications in the domains of Computer Vision and Image Analysis for researchers in academia and industry as well as for Master and PhD students working in Computer Vision, Image Analysis, and related fields.

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