

# Preface

The research book is focused on the recent advances in computer vision methodologies and technical solutions using conventional and intelligent paradigms. The contemporary solutions based on advanced mathematical achievements emphasize more information and visual monitoring in natural and human environment. The real challenge of designing such observation models are to make them close to realistic visualization and interpretation of events in our world.

The book presents some of the research results from some of the most respectable researchers in the field of computer vision stressing on mathematical theory. Of the 11 chapters, the first chapter presents a brief introduction of the chapters presented in the book. Chapter 2 is on the Morphological Image Analysis for Computer Vision Applications. Chapter 3 presents techniques for Detecting the Structural Changes in Computer Vision. Chapter 4 is on Hierarchical Adaptive KL-based Transform: Algorithms and Applications. Chapter 5 is on Automatic Estimation for Parameters of Image Projective Transforms Based on Object-invariant Cores. Chapter 6 is on the Analysis of Energy for Image and Video Sequence Processing. Chapter 7 is on Optimal Measurement of Visual Motion Across Spatial and Temporal Scales. Chapter 8 presents the Analysis of Scene Using Morphological Mathematics and Fuzzy Logic. Chapter 9 is on Digital Video Stabilization in Static and Dynamic Scenes. Chapter 10 presents the Implementation of Hadamard Matrices for Image Processing. The final chapter is on A Generalized Criterion of Efficiency for Telecommunication Systems.

The book is directed to the Ph.D. students, professors, researchers and software developers working in the areas of digital video processing and computer vision technologies.

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