Preface

Surveillance systems have become increasingly popular in the globalization process. However, the full involvement of human operators in traditional surveillance systems has led to shortcomings, for instances, high labor cost, limited capability for multiple-screen monitoring, inconsistency during long-durations, etc. Intelligent surveillance systems (ISS) can supplement or even replace traditional ones. In ISSs, computer vision, pattern recognition, and artificial intelligence technologies are developed to identify abnormal behaviors in videos. As a result, fewer human observers can monitor more scenarios with high accuracy.

This book presents the research and development of real-time behavior-based intelligent surveillance systems, at the Chinese University of Hong Kong, as well as Shenzhen Institute of Advanced Technology (Chinese Academy of Sciences). We mainly focus on two aspects: 1) the detection of individual abnormal behavior based on learning; 2) the analysis of dangerous crowd behaviors based on learning and statistical methodologies. This book addresses the video surveillance problem systematically, from the foreground direction, blob segmentation, individual behavior analysis, group behavior analysis, unsegmentable crowd behavior analysis.

This book is appropriate for postgraduate students, scientists and engineers with with interests in the computer vision, and machine intelligence. This book can also serve as a reference book for algorithms and implementation in surveillance.

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