

Preface

The book is about computer vision and action recognition & understanding. If you have a basic knowledge on image processing and would like to study or to do research on action/activity understanding and recognition in computer vision and related arenas – then this is the book for you!

Throughout my endeavor to write this book, I have undergone many discussions with many experts during various conferences and academic meetings, discussed over emails on many challenging issues. I would like to thank them for their valuable time and inputs. Those exchanges facilitate me to build up and mature different ideas in the line of this book.

The materials presented in this book are covered in seven chapters – from basics to methodologies to challenges ahead. The fundamental goal of this book is to cover the important and related issues in such a manner – so that a student or a researcher can find ample of resources and points to go through. Chapter 1 defines action and activity. There is no clear-cut well-accepted nomenclature for atomic action to activity or behavior. This Chapter presents the key issues and I hope that a new researcher will find it very useful. Chapter 2 covers some important low-level image processing topics, which are more relevant for action recognition. If one has no prior knowledge on image processing and computer vision – this chapter can help him/her to build a background in concise manner. In Chapter 3, state-of-the-art action representation approaches are organized for better understanding on this area. It is one of the core chapters of this book that deals with representations, action recognition approaches, affective computing, action segmentation, gait recognition, and related issues.

Chapter 4 presents the motion history image method, as it is one of the most widely employed methods. However, this chapter not only presents this method and its appli-

cations, but also digs out various developments at the top of this method, from which one can retrieve essences on developmental issues from an existing approach.

Chapter 5 summarizes shape representations and pattern recognition issues in a concise manner. A reader may need to look into more details on the approaches he/she requires for further study. In Chapter 6, the datasets for action recognition are covered. This is another very important contribution of this book – because no other material is available till-to-date that encompasses the dataset issues in such comprehensive manner, as covered in this book. Finally, Chapter 7 ponders upon the challenges ahead in this important field, through plenty of new dimensions and thought-provoking discussions on present and future challenges.

After each chapter, I put some tasks under ‘Think Ahead!’ for students and researchers – so that they do some brain-storming based on the materials covered in this book. It is written in a simpler manner, with about 650 relevant citations, so that a student or a researcher can look into those references for further study on that specific area.

None is perfect! Therefore, I encourage you to write me for any comment, criticism or feedback on the book for its future development – to atiqahad@univdhaka.edu or atiqahad@yahoo.com on: What are the areas to improve in future? What topics are left out? What topics should be added? What areas need more attention?

I very much confident that this book will contribute the academia as a textbook, to run a regular course in Graduate-level or Undergraduate-level; and also guide a researcher to accomplish the work in a comprehensive manner. Let’s hope that better methodologies in future will lead us towards more human-oriented real-life applications for *better life*. With this high-toned yearning, I would like to welcome you to read this book and inform others!

Best regards,

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Community for Action Understanding

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