Recent Trends in Hand Gesture Recognition

Edited by Ankit Chaudhary

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Gesture Recognition is one of the most active research areas currently and Researchers, Engineers are working to apply it in different domains. Gesture recognition has arrived from color, clips and chemicals to natural hand, where it can be recognized without any extra material and no special hardware is needed. It is popular as it is available in mobile phones and tablets where everyone is using them like i-pad. They can be in any form, a free hand structure or a fixed sign, like sign language, for specific meaning. These days TVs, Phones, Robots, Cars, Doors, Music players, Games and many other applications can be controlled using hand gesture. Gesture can be recognized using Vision or sensors. Vision has helped in many areas for better services and fastens the process for localized results. Sensor based applications need some specific sensor which should be in the device to recognize the gesture, while vision based algorithms work with a camera.

This book came as an idea to collect state of the art of hand gesture recognition. It includes state of the art techniques for hand gesture recognition, feature extraction technique and technology implemented in miniature devices for normal day life.

The first Chapter "Android Based Portable Hand Sign Recognition System (Jagdish L. Raheja, A. Singhal, Sadab and Ankit Chaudhary)" discusses an interesting application of mobiles which can be used to recognize hand gesture. This can be used to recognize sign language where a disabled person can convert his signs into a readable/sound message.

Chapter two "Feature Extraction Technique for Static Hand Gesture Recognition (Haitham Badi, Sameem Abdul Kareem and Sabah Husien)" deals with the comparison of feature extraction methods based on hand contour and complex moments. They showed that using complex moments, hand gesture recognition is more reliable having higher accuracy. Six test gestures were used for this purpose and data was classified with ANN.

The third Chapter "Hand Gesture Recognition Based on Signals Cross-Correlation (Anna Lekova and Mo Adda)" proposes a framework for gesture profiling and recognition based on signal processing and cross correlation. Hand segmentation was done

with infrared radiation and gesture was classified with wave based profile.

The fourth Chapter "Compositional and Hierarchical Semantic Frameworks for Hand Gesture Recognition (G. Simion, C. David, C. Caleanu and V. Gui)" discusses 2D features used in hand gesture recognition with the hierarchical semantic designs. Also a 3D Tof hand gesture database is introduced.

In conclusion, I consider the outcome of this book shall bring state of the art papers together in the field of Hand Gesture Recognition and would be a source of information for researchers in the coming years. At the same time, it seems clear how many questions remain still open and unaddressed. I hope these papers can stimulate further and yet deeper research in this exciting field. I also thank all the authors who submitted their papers, as well the thoughtful work of the many reviewers who have provided invaluable evaluations and recommendations in a timely manner.

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Finally, I would like to thank Science Gate Publishing to bring this idea into reality. I hope this book would be a reference for the researchers and engineers working in this field since it is growing everyday with new applications.

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