

Acknowledgement

First and foremost, I would like to thank my supervisor Prof. Shyamanta M. Hazarika for guiding me in my research and helping me throughout my Ph.D. work. I feel extremely lucky to have him as my supervisor. He has provided invaluable suggestions and the flexibility that I needed to complete my research work. He has always encouraged to propose and develop innovative ideas. I thank him for all the support he extended during this period.

I extend my sincere thanks to Tezpur University for providing the necessary facilities and support to complete my work. I would like to extend my special thanks to the honourable Vice Chancellor Prof. Mihir Kanti Chaudhuri and other administrative functionaries for being kind enough to award extra time for completing my Ph.D. work. I have benefited a lot from the suggestions of the faculty members in the department of Computer Science and Engineering. My special thanks to Prof. M.K.Dutta, Prof. D.K.Bhattacharyya, Prof. Utpal Sarmah and Prof. Nityananda Sarmah and Dr. Rosy Sarmah whose help has been exceptional.

I also thank the Commissioner, Higher Education Department and the Principal of Jorhat Engineering College for allowing me to undertake my Ph.D. work as a part-time scholar. They have made necessary adjustments in my academic and administrative responsibilities so as to enable me to carry out my research work. Special thanks to colleagues Dr. Sauravjyoti Sarmah and Dr. Diganta Hatibaruah whose help is highly appreciated.

I thank my family members for their constant support and encouragement. My parents were in mid-eighties; but still they took a keen interest about how my Ph.D. work was going on. They provided valuable suggestions about keeping the balance in professional and academic life. My wife has been extremely supportive during this period and provided me constant encouragement. I thank her for taking the household burden and thus creating an opportunity for me to concentrate on my work. At last, I thank my son Ramanuj for his help in recording motion pattern videos.

Finally, I dedicate this thesis to my departed parents.