

Acknowledgement

First and foremost, I thank my supervisor Prof. Shyamanta M. Hazarika and co-supervisor Dr. Arindam Karmakar for guiding me in my research and helping me throughout my PhD. Their invaluable insights and constructive criticisms have helped shape this thesis. I will always be grateful for their encouragement and enthusiasm without which this thesis may not have been possible. I have learned many things from them within and beyond the scope of my thesis, that I believe will help me throughout my life.

I would like to extend my heartfelt thanks to my Doctoral Committee members, Prof. Utpal Sharma and Prof. D. K. Bhattacharyya. I am deeply grateful for their sincere and practical advice that has helped me throughout my PhD. I thank Prof. Malay Dutta who was a former Doctoral Committee member. I would also like to thank the Head of the Department of Computer Science and Engineering, Prof. Nityananda Sarma. His support and understanding has helped in the smooth completion of my PhD.

I thank all my friends and colleagues who have always unhesitatingly extended their help whenever I have needed it. My special thanks go to all the present and past members of the Biomimetic and Cognitive Robotics Lab. The research discussions in the lab and the social interactions with them have been equally indispensable in keeping me sane and level-headed throughout my PhD.

Last but not remotely the least, I thank my mother for her unwavering belief and constant support. It would not have been possible for me to have come this far without her fierce resolve to give me the best in life. Words fail to describe my love, admiration, and gratitude for her. *I dedicate this thesis to you, Ma.*