Acknowledgement

It would not have been possible to write this doctoral thesis without the help and support of the kind people around me, to only some of whom it is possible to give particular mention here.

In the first place, I would like to record my gratitude to Dr. Jyotsna Sengupta for her supervision, advice, and guidance from the very early stage of this research, as well as giving me extraordinary experiences throughout the work. Above all and the most needed, she provided me unflinching encouragement and support in various ways. I am indebted to her more than she knows. I appreciate all her contributions of time, ideas, and funding to make my Ph.D. experience productive and stimulating. The joy and enthusiasm she has for her research was contagious and motivational for me, even during tough times in the Ph.D. pursuit.

I would like to thank my father and brothers, who have given me their unequivocal support throughout, as always, for which my mere expression of thanks likewise does not be enough.

I would also like to acknowledge the financial, academic, and technical support of the Punjabi University, Patiala and its staff, which provided the necessary financial support for this research. The library facilities and computer facilities of the University have been indispensable. I also thank the Department of Computer Engineering, University College of Engineering, Punjabi University, Patiala for their support and assistance since the start of my work, especially the in-charge of the department Dr. Amardeep Singh.

Last, but by no means least, I thank my friends and colleagues for their support and encouragement throughout.

Maninder Singh Kamboj