ACKNOWLEDGEMENT

First and foremost, I would like to express my gratitude to the Almighty God, for giving me the ability to think, research, and investigate.

As we say in Hindi that “It is the teacher who brings you close to God” so a heartfelt thanks to my advisor, Prof. Dr. Rajesh Siddavatam, for his valuable supervision and support in every step taken in the preparation of this thesis. It was indeed an honour to learn under his supervision during the course of my Ph.D. I can honestly say that his convincing, encouraging and friendly attitude has converted this long and challenging period into a more enjoyable and rewarding experience for me.

A heartfelt gratitude to Dr Y Medury, COO, Jaypee Education System, for being always supportive and encouraging. I would also like to thank Prof. S P Ghrera, Head of the Department, Computer Science and Engineering, Prof. T S Lamba, Dean Academics and Research and Brig.(Retd.) Balbir Singh, Director, for their valuable feedback in my thesis progress presentations during the last three years. I would like to acknowledge the members of my thesis committee, Dr. Pradeep Kumar, Dr. Nitin Chaderwal and Dr. Hemraj Saini for their support and suggestions which improved the quality of the thesis.

My gratitude goes to my husband, Col Sumeet Arya, who dedicated countless number of hours in discussion and reading of my work without knowing what it all meant. His trust, patience, motivation and faith gave me the strength to complete this herculean task. I owe special thanks to my two wonderful kids Kanishk and Ishika whose support and patience during past three years has made this dream come true.

Finally and most importantly, I would like to thank my parents, my in-laws and Anita, Ankush, Chandrakanth, Rehan and Daiwik for their unconditional love, encouragement and support.