I would like to express my special thanks and gratitude to my guide Professor R. C. Singh for his continuous support of my Ph. D study and related research, his patience, motivation, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better supervisor and mentor for my Ph. D study. I would like to thank him for encouraging my research and for allowing me to grow as a better teacher and a good human being. His advice on both research as well as on my career have been priceless.

I would also like to thank my department members, (Late) Professor Parvez Ahmad, Professor Anil Kumar Soni, Professor Shri Kant, Professor Ishan Ranjan, Professor Arun Mehta, Dr. Ashok Kumar Sahoo, Dr. T. P. Singh, Dr. Rajiv Kumar, Dr. Kiran Kumara Ravulakollu, Mr. Rupesh Jindal and Mr. Pradeep Kr. Mishra for providing me guidance and support whenever needed. I also want to thank the members of Computer Science & Engineering department for letting my defense be an enjoyable moment, and for their comments and suggestions.

My sincere thanks also goes to Dr. R. P. Singh (Founder Vice-Chancellor, Sharda University), Professor Rajesh Kumar, Professor Phalgungi Gupta, Professor B. Bhattacharya, Maj. Gen. Professor J. R. Bhatti, Professor P. Basak, Professor A. H. Siddiqi, Dr. Rajendra Kumar, Professor M. L. Sadana, Professor Parmanand Astya, Dr. Aditya Gautam, Dr. Gunjan Jain, Dr. Varun Kr. Bajpai and Dr. P. K. Singh, who provided me an opportunity to join their team as scholar and who gave access to the laboratory and research facilities. Without their precious support and valuable suggestions, it would not have been possible to carry out this research.
I thank my students Mr. Aashish Jain, Mr. Rahul Kumar and Mr. Saiyam Diwan for the collection of real time data, for the sleepless nights we were working together before deadlines, and for all the fun we have in the last six years.

I am grateful to the management of Vidya Knowledge Park, the library and IT staff of Vidya College of Engineering for providing all the support needed from time to time. I am thankful to Mr. Gaurav Bharti to formatting my thesis.

A special thanks to my family. Words cannot express how grateful I am to my mother, father, my brother, sister-in-law and my son for all of the sacrifices that they have made. Their prayer for me was what sustained me thus far. I would also like to thank all of my friends who supported me in writing, and incented me to strive towards my goal. At the end I would like express appreciation to my beloved wife Nidhi Singh Khokher who spent sleepless nights with and was always my support in the moments when there was no one to answer my queries.

(Rohit Khokher)