Acknowledgments

The completion of my doctoral program thesis has been a long journey. This thesis would not have been possible and complete without the invaluable aid and support of a several people. Without these supporters, I may not have gotten to where I am today.

To the many people I would like to give special thanks, my primary gratitude goes to my academic and research supervisor Professor Dr. Prabhat Ranjan for the constant encouragement and priceless suggestions. These pearls of wisdom not only helped me complete my thesis but also molded me for my career in the future. His leadership, support, attention to detail, hard work, and scholarship have set an example for me. Sincere thanks to Professor Dr. S. C. Sahasrabudhe, Director DAIICT, Gandhinagar for providing the best possible research facilities in the institute. I would also like to mention Dr. T.S. Kumbar, our librarian for delivering top quality resource facilities and making available all the books and papers as and when required. My sincere thanks to the advisory committee members Professor Dr. Sanjay Srivastava and Professor Dr. Jaideep Mulherkar for their thorough interest shown in my work. Their beneficial comments and their sparring valuable time for me is something I will cherish forever.

A very special thanks goes out to Professor Dr. S. Dharmaraja of the Mathematics Department, IIT Delhi for sparring his precious time for both technical discussion and immense moral support. Also, my sincere thanks goes to Professor Kishor S. Trivedi, Duke Univer-
sity, Durham, North Carolina for making software tool SHARPE available to me.

I wish to place on record my candid thanks to Ms. Resham Vinayak (Research scholar, Mathematics Department, IIT Delhi), Mr. Guneshwar Anand (Faculty, CEPT Ahmedabad), Mr. Sudhanshu Dwivedi, Mr. Anshul Goyal and Mr. Hiren Shah (DAIICT) for their direct assistance. Their contribution, time and efforts will remain unforgettable forever.

I express my deepest gratitude to the esteemed colleagues at DAIICT- Shubham Jain, Sunil Jardosh, Ratnik Gandhi, Pratik Shah, A. Purushothaman, Bhavesh Dharmani and Sai Nambari among others for the instant help they provided and especially for boosting my morale. They created a wonderful work environment which made the thesis easier.

The thesis would not have been possible without the monumental support of my family. My husband, Hiren has been perhaps the most patient and supportive witness to my academic journey over the past years and I thank him for being there all throughout. My children, Mukul and Kaushal are the sunshine of my life and their love as well as affection has made me realize my capabilities even better and taken out the best in me!

My deepest gratitude and thanks to the wonderful parents God has blessed me with. Mr. Sharad Kulkarni and Mrs. Shailaja Kulkarni who provided me with a strong upbringing thus laying the foundation for my academic journey as well as Mr. Jagdish Prasad Joshi and Mrs. Sumitra Joshi who continued to support me in all spheres of life. The support, encouragement and motivation they provided me cannot be thanked just by mere words. This journey, both academic and personal would not have been possible without these four invaluable individuals, I have the privilege to call my parents. Completion of this arduous task is one of their dreams coming true!

( Gauri Hiren Joshi )