

Acknowledgments

I am thankful to God for the good health and courage that were necessary to complete this work. I feel proud to thank my family who taught me many great things in simple ways that helped me survive the ups and downs of my life.

I thank my Ph.D. Thesis Supervisor, *Dr. Anil Kumar Tiwari*, for always encouraging me to explore the research area independently. In the process, I have learned many technical and non-technical aspects of professional work. I am grateful to him for his *support* and *help* as well as for constantly reminding me to be perfect in the little things that I do each day. Also, I am indebted to the Members of the Doctoral Committee, *Dr. Gaurav Harit*, *Dr. Gaurav Bhatnagar* and *Dr. Chironjoy Chattopadhyay*, for their enthusiastic and continued guidance during the research work.

I would also like to thank the Electrical Engineering department of IIT Jodhpur for providing the required research facilities. I am thankful to the faculty members of the department who were always supportive and helping. In addition, I wish to thank all the staff members of the department for providing all sort of administrative and technical support during my study.

Further, I am thankful to the Director of IIT Jodhpur for providing adequate facilities and making my stay at the institute comfortable and fruitful. I would also like to thank students' gymkhana of IIT Jodhpur for giving me a chance to represent the students at IIT Jodhpur.

I am grateful to the Ministry of Electronics and Information Technology (MeitY), Government of India for initiating the visionary Visvesvaraya PhD scheme for Electronics and IT. This scheme enhances the research in the Electronics Design and Manufacturing (ESDM) and IT/IT enabled Services (ITES) sector.

I am indebted to the Ministry of Youth Affairs and Sports, Government of India for selecting me to be a part of Indian delegation to Portugal in 2018. I would like to appreciate our visionary Prime Minister of India for developing such a fruitful bilateral relation with new countries and enabling the youth of India to work abroad. I thank Madam Ambassador (Indian Embassy, Lisbon) for her efforts towards this successful visit.

I wish to thank my lab-mates, *Puneet Jain*, *Tushar Shinde*, *Aditya Raj*, *Naveen Mangal*, *Deepak*, and *P. Shabari Nath* for all their help. My stay at the Institute was a wonderful experience because of my seniors and friends, *Vijendra Bhati*, *Javed Ahmed Naikoo*, *Dileep Kumar*, *Bhuvnesh Rathore* and *Hargeet Kaur* and I wish to thank them all for the liveliness they infused into the non-academic part of the days at IIT Jodhpur.

I acknowledge and thank my family, especially my father *Siddharth Shankar Jha*, my mother *Amrita Jha*, my brother *Sanoj Kumar*, and my sister *Nikita Kumari* for the patience and love with which they ushered on me, and for bearing with me even when I was spending less time with them. Lastly, I would like to thank my wife *Rena Brogarolas Laurin* for her love and believe which empowered me during my stay at IIT Jodhpur.

...

