Acknowledgments

I am indebted to my thesis supervisor *Dr. Abdul Gafoor Shaik* for giving me an opportunity to pursue my research career under his guidance. His support and belief in me, has led me to this moment where I present my thesis. His guidance not only taught me how to be a good researcher but also a good academician. I learnt many technical and teaching skills along with pursuing my research. It was his patience that I led myself to this point of thesis submission with zeal, positivity and determination.

I am thankful to *Dr. Ganesh Bagler* for igniting the interest for research. I also thank my Doctoral committee members, *Dr. Sandeep Yadav*, *Dr. Mahesh Kumar* and *Dr. Venkatesan* for their valuable guidance. I also want to thank my then M.Tech supervisor *Dr. Akhil Ranjan Garg* and *Dr. Jaishree Vajpayee* for motivating me to pursue PhD and always showing their support through out my PhD.

My journey cannot be completed without thanking enough to my friend and lab-mate *Bhuvnesh Rathore* who not only morally supported me in my tough times of PhD but also helped me in solving problems during my research work. I am deeply appreciative to my friends and lab-mates, *Ranveer, Arpita, Hiteshi, Sumit, Divya, Poonam, Ramesh, Naveen, Rahul, Rakhi, Vipul, Deepak, Aditya, Mohit, Gajendra, Mahela Sir, Birender, and Shilpa* for being with me, listening my trivial problems at any time.

My sincere gratitude and thankfulness to my *family*, *parents* and brother, *Jai*, specially my mother who supported me throughout my journey. They showed calmness, understanding and patience for me.

Last but not least, I want to thank my *almighty* for ushering everlasting strength, patience and determination....