Acknowledgements

Undertaking this research has been a truly life-changing experience for me and it would not have been possible without the support and guidance that I received from many people. First of all, I offer my heartfelt devotion to the almighty for providing me the opportunity to pursue higher studies and bestowing this sacred blessing on me.

I am indeed indebted to my supervisor Dr. Manoj Kumar, Assistant Professor, Department of Computer Science, Babasaheb Bhimrao Ambedkar University, Lucknow, for his help and support during my research work. I feel privileged to express my sincere regards and gratitude to my supervisor for his invaluable guidance, constant supervision, fruitful discussions and constant encouragement throughout the course of my research work. The critical comments, rendered by him during the discussions are deeply appreciated.

I pay my deep tributes to all the researchers in the world around, working for the development of Science and Technology for the betterment and enlightenment of the society and feeling to be the part of that community gives me a great pride and pleasure.

The award of the degree Doctor of Philosophy is one of the hardest deserving achievements. People struggle for it and achievement is not easily found. In this regard, I am grateful to the University and express my deep sense of gratitude to its Hon’ble Vice-Chancellor for providing this great opportunity to me.

I convey my sincere thanks to Prof. Vipin Saxena, Dean, SIST, Prof. Sanjay K. Dwivedi, Head, Department of Computer Science, Department Research Committee and all other faculty members of department for their motivation and support during the research. I would also like to show my gratitude to the department, for the provision of the best equipment and pleasant office environment required for good
quality research. I would also like to thank all administrative and supporting staff of the University for providing the comfortable environment and help.

This research work would not have been possible without the cooperation and support extended by fellow research scholars. In this regard, I would particularly like to deeply appreciate the great help of my friends Manoj Diwakar, Sonam, Ankita Vaish and Ganesh Chandra, who always kept the healthy research environment and extended their full cooperation during my research work. They have given me support, and a joyful and wonderful university life.

My heartfelt thanks are to my husband Mr. Rajeev Gupta, without whom, I would not have had the courage to embark on this journey. Without his support, this research work would not have been possible. He supported me unconditionally throughout my research work. It is difficult to find adequate words to express my appreciation for the help and support given by him.

I wholeheartedly thank my parents, my in-laws, my sister Kriti and my brother Kshitij for their enduring patience and for providing the moral support during the course of this work.

I gratefully acknowledge University Grant Commission (UGC), New Delhi, India for the fellowship to carry out this research work.

Lucknow
(Smita Agrawal)
February, 2017