ACKNOWLEDGEMENTS

Indeed the words at my command are not adequate enough in form of spirit, to express the depth of my humility and humbleness before Almighty One without whose endless benevolence and blessings this tedious task could not have been accomplished.

This is a tribute to a number of people without whom this doctoral thesis would not have been achieved however, it is impossible to give particular mention of all.

In the making of this thesis the help, support and patience of my principal supervisor, Prof. (Dr.) Arvind Kalia, Chairman Computer Science Department, has been much more than my words can express, not to mention his advice and unsurpassed knowledge. I am very appreciative of my second supervisor, Prof. (Dr.) Hardeep Singh of generosity with his time, the good advice and his kind support has been of immense help. Though the distance between his place and mine was of hundreds of miles but his warmth of encouragement was felt at every moment of my journey of research. Both my mentors have been invaluable on both an academic and a personal level, for which I am extremely grateful.

I would like to extend my deepest gratitude to my friends and colleagues Prof. (Dr.) Amarjeet Singh, Prof. (Dr.) Manu Sood, Dr. Kishori Lal Bansal and Er. Jawahar Thakur for their help during my research years. I must say I am beholden to Dr. Sanjay Sindhu for all the many good deeds of his.

I owe a lot to my parents, who constantly encouraged and helped me at every stage of my personal and academic life and longed to see this achievement come true. I deeply miss my father and pay my deepest gratitude, though he is not with me to share this joy but is constantly watching me grow. The words are too meagre, tears are too less for expressing my deepest sense of gratefulness and heartiest thanks to my mother Mrs. Raj Sharma for the moral support. Due to
devout prayers of my mother, wishes of my sisters Sunita and Seema and love of my nephew Tanuj and niece Neha I have managed to reach to this zenith.

I am also deeply indebted to my father-in-law Mr. S.C. Ganpati and mother-in-law Mrs. Pushpa Ganpati and Mr. Ashan Kaushal for all the blessings they constantly shower on me. I also thank my brother-in-law Mr. Anil Ganpati, sister-in-law Nisha Ganpati, Gugal and Manan for their love and encouragement.

The core of my heart expresses my sincere heartfelt thanks to my life companion and colleague Anita Ganpati. She has been my source of strength and love and has stood by me in every step of my life, through thick and thin. The tirelessly, never ending, hard work mixed with motivation of her has been a huge endeavour in the making of this thesis.

Last, but by no means least, I thank staff members of Computer Science Department Sh. Daya Ram, Sh. Hassan, Sh. Govind, Sh. Manjeet, Sh. Vijay, Sh. DinaNath and Sh. Sunny.

For any errors or inadequacies that may remain in this work, of course, the responsibility is entirely my own.

Aman Kumar Sharma
21/11/13