ACKNOWLEDGMENTS

My thanks is first to "Allah" the almighty for providing me with the gifts of faith, health, and strength to accomplish this study and helping me to reach this milestone.

Words are inadequate to express my deep sense of gratitude to my supervisor, Dr. Ajay Kumar for his insightful comments, valuable guidance and sympathetic assistance at every stage of this study. My sincere thanks to him for offering me lot of professional and personal support during my study.

My special thanks are due to my Co-guide Dr. A. D. Shaligram for his generosity and help at different stages of this research.

I am greatly indebted to University of Hodeidah, Yemen, who helped me in various ways in completing this study.

My humble thanks to Head of Department of Computer Science, University of Pune for showing keen interest in the topic of my research and providing valuable guidance.

Research involves a lot of reading and the scholastic environment and generous help afforded by the library staff of Jayakar Library and computer science department library, university of Pune. I sincerely thank both library staff for giving me a free access to the ocean of knowledge on the book shelves. I thank them for having readily providing me with access to the library resources and providing me with the latest articles on the subject and for encouraging me.

I wish to declare my sincere of appreciation to all the staff (teaching and non-teaching) of the department of computer science, University of Pune. Special thanks to: Ms. Sheetal Garade, Mr. Shrikant C. Kale, Mr. Umesh Purohit, Mr. Satish Mandlik, Mr. Nitin Bhosale, Mr. Vishal Khude and Suresh Saykar.

I must thank my parents for being my first educators and life's anchor. My sincere thanks to my father (may Allah have mercy on him) who has been my pillars of strength and encouragement. My mother was the core of my life and great symbol for hard work and achievements. It is my parents who created in me love for science and knowledge.
I wish to offer special thanks to my brothers and sisters specially Aziza, Abdulrahman and Abdulrazzaq for being there for me all the time. Thousands of thanks to my family who tolerated the consequences of me being away from them just to help me pursue my dream. It is my family who believed in me boosted my confidence.

My husband Taha deserves a special mention as he stood by me and was always willing to offer his help in many different ways

Finally, I wish to thank each and every one who directly or indirectly supported me in this research

Maha S. M. Al-Zabidi