ACKNOWLEDGEMENTS

I would like to take this opportunity to express my deep sense of gratitude to all who helped me directly or indirectly during this thesis work. Firstly, I would like to thank my supervisor, Dr. Sanjay K. Singh, for being a great mentor and the best adviser I could ever have. His advice, encouragement and critics are source of innovative ideas, inspiration are causes behind the successful completion of this dissertation. The confidence shown on me by him was the biggest source of inspiration for me. It has been a privilege working with him from last three years.

I am highly obliged to all the faculty members of the Department of Computer Science and Engineering for their support and encouragement. I express my sincere thanks to the Head of the department, Prof. K. K. Shukla, Prof. A. K. Tripathi, Prof. R.B. Mishra and Prof. A.K. Agarwal of the department of Computer Science and Engineering and Dr. Neeraj Sharma of the School of Biomedical Engineering, for providing continuous support, encouragement and advice. I express my sincere thanks to all the Professors, Deans, office staff, supporting staff and Ph.D. Research Scholars of Indian Institute of Technology (Banaras Hindu University) Varanasi India. I express my gratitude to Director, Registrars, Deans, Heads, and Student Alumni of the Indian Institute of Technology (Banaras Hindu University) Varanasi.

I am grateful to all my friends from our department - Mr. Debanjan Sadhya, Mr. Dharmendra Prashad Mahto, Mr. Sanjay Kumar Singh, Mr. Ashish Maurya, Mr. Santosh Kumar, Mr. Ramesh Pandey, Mr. Ali Imam Abidi and Mr. Anupam Biswas for their encouragement, moral support and affection, and for making my stay at IIT (BHU) Varanasi a memorable one.

I extend special thanks to the non-teaching staff in the Department, particularly, Mr. Shashikant Singh, Mr. R. P. Meena, Mr. Rajendra Kumar, Mr. Bharat Pandey, and Mr. Kanhaiya Lal for their consistent support.

Finally, my parents have been my best mentors, preparing me for life in its various aspects. There are no words to express my gratitude for all the selfless efforts they made. I thank my brothers, sisters for their love and encouragement, especially in difficult times. I can not find words to express the depth of my feelings for them and the love and affection that I got from them.

- Durgesh Singh