Acknowledgements

I wish to express my gratitude and indebtedness to my supervisor **Prof. Prasanna Kumar**, Head of the Department, Mathematics for providing me the opportunity to work under him. This thesis is the end product of his constant support, motivation, encouragement and valuable guidance given by him during research work. I also thank him for rectifying my mistakes that usually a research scholar will do during the learning phase and providing valuable suggestions to improvise them.

I am grateful to **Prof. B. N. Jain**. Vice Chancellor, BITS Pilani, **Prof. K.** E. Raman, Acting Director, BITS Pilani - K. K. Birla Goa Campus, Late **Prof.** T. C. Goel, Ex. Director, BITS Pilani - K. K. Birla Goa Campus, **Prof. A. K.** Das, Dean, R&C Division, BITS, Pilani for giving me an opportunity to carry out my research studies at the institute.

I convey my special acknowledgements to **Prof. S. D. Manjare**, Faculty In-Charge, R & C Division, BITS, Pilani - K. K. Birla Goa Campus for his indispensable help during the course of this work.

I wish to thank **Prof. Bharat M. Deshpande**, Head of the Department, Computer Science and Information Systems and all the faculty members specially **Prof. S. K. Sahay** and **Prof. Ram Prasad Joshi** of BITS Pilani - K. K. Birla Goa Campus for their help, encouragement, suggestions and support.

I wish to thank **Prof. Bharat M. Deshpande**. Head of Department, Computer Science and Information Systems and **Prof. Pravin M. Singru**. Head of Department, Mechanical Engineering, BITS Pilani, K K Birla Goa Campus for reviewing and providing valuable suggestions, which made the thesis more clearer.

I also wish to thank **Prof. K. R. Anupama**. Head of the Department, Electrical and Electronics Engineering for permitting to use the server for program execution.

My wife **Shanta** is an equal partner with me in this endeavor for not being able to share time together and took more responsibility of my son **Saai Srujan** throughout the course of my work. I am indebted and also apologetic to my dearest son for not spending enough time with him to realize this work.

Raghavendra G. S.