Acknowledgements

As I come to the end of my thesis work, I look back my trodden path to remember with gratitude all those people who made this thesis happen.

My Supervisor, Dr. Satish Kumar, not only initiated me into research but also, holding my hands, guided, assisted and encouraged me at each and every stage of this endeavour till its completion. His unparalleled energy and spirit of determination, tolerance, strict discipline but with kindness and affection and his ability to handle myriad tasks with perfection taught me much more beyond research. Sir, in the course of your painstaking efforts to shape me both in research and as a person, you filled in me with subtle values of life. “Still thou pourest, and still there is room to fill”. I thank my good fortune for the privilege of being with you.

I would like to thank Professor S.S. Bhojwani, Director DEI for making available and accessible facilities in the university during my thesis work and Professor A.K. Sinha, Dean, Faculty of Science and Professor V.G. Das, Head, Department of Physics and Computer Science for their support and encouragement.

I am very grateful to Dr. Sandeep Paul for his much invaluable assistance and guidance. Sir, while chasing various journal and conference contribution deadlines, your sittings with me not only prevented things from going haywire but also taught me to maintain composure during troubled times.

I thank Dr. Gunjan Agarwal for helping me to solve mathematical problems whenever I faced. Prof. Adhar sent me all the materials as and when I requested. Thanks are due to him.

I am very fortunate to be surrounded by a supportive and cheerful group of
friends and members of Neural Networks Laboratory. They helped me to withstand the difficulties I faced during the course of this work. I wish to thank all of them for their friendship, support and good times.

I am grateful to my friends Alok, Ritesh and Vikas for providing me with all the materials from IIT Delhi whenever I needed. Hey guys! you were solid support for me.

I owe debt to many anonymous reviewers who constructively contributed to the final form of various contents in this thesis which were communicated to journals and conferences for possible publications.

I gratefully acknowledge the financial assistance provided, during the course of this thesis work, by the Department of Science and Technology (DST), New Delhi and the Council of Scientific and Industrial Research (CSIR), New Delhi.

I thank my grandpa and grandma for being my constant source of inspiration. Your umpteen letters kept my morale high during troubled times. Thank you very much ‘thatha’ and ‘aachi’. Thanks are due to my brother Kumar; sisters Chitra and Radha; and my relatives whose reprimands and interest kept me on the right track till the completion of this work.

I thank Srinivasa Rangan ‘thatha’ for his constant encouragement and interest.

Above all, I am indebted to my parents, who understand the demands of this endeavour but gave up far more to see me completing this task.

Dayalbagh
February 2005
C. Shunmuga Velayutham