ACKNOWLEDGEMENTS

I am indebted to Lord Venkateswara for showering his blessings on me in completing this work.

I cherish the last words of my father which inspired me to submit this thesis.

I am fortunate to have the goodwill of my brothers Dr. R.V. Kumar, Cardio-Thoracic Surgeon, Nizams Institute of Medical Sciences, Hyderabad; Dr. R. Seshachalapathi and Mr. R.V. Subba Rao which served as the driving force in carrying out this work.

I thank all the reviewers, editors of journals, Chairpersons and the Coordinators of conferences who encouraged me by accepting and Publishing my papers.

I am grateful to the Chairman and Members of the University Research Committee for according me the necessary permission.

I am obliged to Dr. T. Krishna Parandhama, formerly Principal and Dean, Faculty of Engineering; Dr. G. Bhammurthy, Professor in Electronics and Communication Engineering and Chairman, Board of Studies (Postgraduate); Dr. G. R. Reddy, Professor and Head, Department of Electrical and Electronics Engineering for their academic and administrative support.
I Profusely thank Dr. K.V.S. Sarma, Professor in Statistics, Dr.V.V.R.Narasimha Rao, Professor in Physics and Dr. M. Muralidhar, Professor in Electrical Engineering, for thier good suggestions and timely help.

It is my courtesy to thank the staff of the libraries of All India Institute of Medical Sciences, New Delhi; Nizams Institute of Medical Sciences, Hyderabad; Indian Institute of Technology, Chennai; Indian Institute of Sciences, Bangalore, Satyabama Engineering College, Chennai; Manipal Institute of Technology, Manipal ; College of Engineering, Osmania University, Hyderabad and S.V.University for providing me the access to the books and journals.

I thank Mr. T.R. Sethuraman, Department of Electrical and Electronics Engineering for his friendly gesture in preparing the figures.

I congratulate the staff of Adayar Students Xerox, Prakasam Road, Tirupati for preparing this document so nicely.

I like the affectionate company of my children Master Srinivas Kumar Vaibhav, Master Ananth Charan Bharadwaja and my wife Visalakshi which enabled me to accomplish this task.

Last, but not the least, I thank one and all who helped me either directly or indirectly in completing this work successfully.

(R.V.S.SATYANARAYANA)