ACKNOWLEDGEMENTS

Working on the Ph.D. has been a wonderful and overwhelming experience. It is hard to say whether it has been grappling with the topic itself which has been the real learning experience, or grappling with how to write papers, give presentations and stay focused. This thesis represents not only my work at the keyboard; but a milestone in my experiences as an Engineer.

My greatest regards to the Almighty, for his compassion and ample grace that has helped me in the successful completion of my Ph.D.

In full gratitude, I acknowledge the following individuals who encouraged, inspired, supported and assisted my pursuit of a Ph.D.

My doctoral committee guided me through my research years at Amrita. Thank you to Dr. Latha Parameswaran for being my advisor. It has been an honor to be her first Ph.D. student. She has taught me, both consciously and unconsciously, how good research is done. I appreciate her contributions of time and ideas, which made my Ph.D. experience productive and stimulating. I am also thankful for the excellent example she has provided as a successful woman researcher and professor. I am forever indebted to my convener, Dr. K.P. Soman, who is my mentor and the sole reason I dared to step into the field of research. Thank you sir. I thank Dr. Sethumadhavan M for his constructive criticism during the doctoral committee presentations, which were instrumental in helping me crank out this thesis.

My sincere gratitude to the management of Amrita Vishwa Vidyapeetham, Coimbatore, for providing necessary facilities to successfully complete this research work.

Privileged to have a wonderful family; I thank them for their infinite support, throughout. I acknowledge with tremendous love, my better half, Rahul, for supporting me emotionally, when I got stuck or needed reclusion. A sincere word of thanks to all friends, who stood by me throughout the research work.

And finally, I owe everything to my parents, who raised me with a love for science, supported me in all my pursuits and who have been making a supreme sacrifice every time I cross a milestone in life.