The completion of this task would have been incomplete without the mention of the people who have made it possible through their constant guidance, support and encouragement.

I am forever indebted to my parents and wife for their understanding, endless patience and encouragement when it was most required in making this task successful.

I am extremely thankful to Prof. G. Hemantha Kumar for his enthusiastic supervision during my research and for offering me a chance to explore new areas of speech processing. Also, thank him for his co-operation, effort and valuable time.

I extend my gratitude to Prof. Samudra Vijaya K. for giving me an opportunity to conduct the study in Tata Institute of Fundamental Research (TIFR) laboratory, Mumbai. His inspiration and passion of explaining the subject clearly and precisely made me understand the word research. I am also thankful for providing me all the facilities during my stay at TIFR.

Prof. Ashok Rao has long been an inspiration to me. Without his motivation, moral & technical support I would not have made this far.

I would like to acknowledge the members of examination panel, Prof. P. Nagabhushan, Dr. D. S. Guru, Dr. Lalitha Rangarajan and Dr. Suresha, for their beneficial observations and support.

Behind the scenes are very close companions of mine, Dr. Manjunath Aradhya, Dr. Noushath, Dr. Dinesh and Dr. Bapu K - fun loving and caring guys who made this research period a memorable one.

Finally, I would like to convey my sincere thanks to all my research colleagues of University of Mysore & TIFR for their continuous support in my endeavors.