Acknowledgements

This Thesis would not have been possible without the support of a lot of people whose help has been fundamental during the years of my Ph.D. studies.

I would like to express my deepest and sincere appreciation to Professor Dhruba Kumar Bhattacharyya my research supervisor for his worthwhile assistance, guidance, advice, support and endless patience throughout the course of this research. I would like to thank him for his continuous efforts to show me the path to follow in each and every steps. This Thesis represents my commitment to shape his brilliant and creative scientific ideas in applying data mining techniques to solve network security problems. It was a honor for me to work with him.

I would like to extend my heartfelt gratitude to my co-supervisor Professor Jugal Kumar Kalita whose constant encouragement and valuable insights provided the perfect guidance that I needed through those years of research. He is a wonderful advisor, mentor, and motivator. Throughout my research, he furnished me countless constructive comments and suggestions that make my thesis flawless.

I am also very thankful to the rest of my thesis guidance committee including Professor Smriti Kumar Sinha and Dr. Bhogeswar Bora. Their advice and suggestions have been very helpful and useful.

I owe my gratitude to all my colleagues of the Ph.D. School who gladden these years of studies in Tezpur, and to all my friends who supported me also during those periods in which I was too taken from my work to reciprocate.

My deep gratitude goes to my beloved son and my wife. I can never express my thanks enough for their endless love, support and understanding.

Towards the end, gratitude goes to my loved mother and father back home for their endless love and sacrifices, and for their sustained moral and financial support during those years of research and throughout my whole life. You were always my source of strength.

This research was supported in part by the Department of Information Technology (DeitY) and Council of Scientific and Industrial Research (CSIR), Government of India. The author gratefully acknowledges their financial support.