Acknowledgement

It is a pleasure to thank those who made this thesis possible, especially my supervisors, Prof. Udayan Chanda and Prof. Satyendra Kumar Sharma. Their constant support and guidance were truly remarkable which taught me how to adapt to the demanding nature of academic research. I thank my doctoral advisory committee, Prof. Praveen Goyal and Prof. Neetu Yadav for helpful comments and suggestions at all stages of my research.

My profound thanks to many people who support me throughout my academic study and my life in BITS Pilani. I am deeply grateful to our department scholars Nikita, Sakshi, Bhanu, Dilawar, Neha, Shilpi, Himanshu, Namita, Victor, Priyanka, and Shubha for helping me out in every way possible. The list would be incomplete without the special mention of my friend Arun and his family who were always supportive and ensured my stay at Pilani was a memorable experience. In these individuals, I have not only found diligent and passionate researchers but also true friends.

I owe my deepest gratitude to my loving parents, brother (Sidhant), and sister (Luis) whose encouragement, and support were crucial for me in the past years.