ACKNOWLEDGEMENT

This thesis is the result of four and half years of work during which I have been supported by many people. It is nice that I now have the opportunity to express my gratitude for all of them. In my opinion, doing a PhD is a sacred task and this was definitely one of the best decisions of my life.

The first person I would like to thank is my supervisor Dr. Debasis Mohanty. He introduced the realm of bioinformatics to me. The concept of in silico research and bio-computation was absolutely novel to me initially but he had faith in me when I had none. I have not met anyone with such a capacity for perseverance as he has, particularly when it comes to explaining complicated concepts. During these five years I have known him as a genuine and principled person, and a wizard with gadgets! His way of viewing and solving a problem and his mission for providing 'only high-quality work and nothing less' has made a deep impression on me. The many discussions and interactions I have had with him lately and all through these years have had a direct impact on the final form and quality of this thesis. Being his first doctoral student makes me feel all the more special. I know that I can be extremely insufferable at times but he has tolerated my presence all these years with commendable fortitude! Besides being an excellent guide, DM has been a good friend to me. I am really glad that I have come to know him in my life.

I thank Dr. Rajesh Gokhale for taking interest in the progress of my work and for always being available when I needed his advice. His enthusiasm is highly infectious and his capacity to instill fresh ideas in young minds fills one with a desire to go ahead in the face of all obstacles and find success. He was not officially in my doctoral committee but I consider him as a co-guide and promoter.

This research has been supported and funded by NII and CSIR and I am grateful to them for the same. I take this opportunity to thank Dr. S.K Basu, Director NII, for his personal kindness to me and for always encouraging me. I also thank, the senior manager of NII, Mr. Bose for being so accessible, and highly considerate towards me. I thank Mr. A.K Aggarwal and his staff in the Academic cell for always assisting me. I also thank Mr. Dahra for letting me have a single room accommodation throughout my tenure here! Because of you all, these years have been some of the best days of my life.

My colleagues and batch mates at NII gave me the feeling of being at home at work. I thank my juniors in the lab, for giving me full rights over the windows PC in the last month for thesis writing! I know how difficult it must have been for you all! I am specially indebted to Anuradha, Tarun, Jyoti, Priyadarshini, Anasuya and Anubha, for proof-reading parts of my thesis and providing valuable comments. Additional energy and vitality for this research was provided externally through the good times I had with friends outside of NII. Many thanks to you all for being with me. Raju, your outlier worked wonders for my thesis! Shvetank, your tips and TWWs helped me a lot in staying at the right track.

I am grateful to the bioinformatics center, Mr. Rao, Sunita and Naveenji, for their cheerful assistance as and when I required it. This lab has been my den for five years, the neat ambience and quiet background humming has become an addiction now! I can not find words of gratitude for my SGI1 which served as an excellent workstation throughout.

I feel a deep sense of gratitude for my parents Ram and Sunita, who formed part of my vision and taught me the good things that really matter in life. They have instilled in me the principle to see the good in everything and be a constructive part of the whole. I am grateful to my sisters Tanuja and Rashu and my brother Shubhankar for rendering me the sense and the value of being in a family.
Little Shubhankar even read a few proofs of some of my chapters and took pains to pester me less when I went home for the weekends!

To Suresh, the sunlight in my universe, I am indebted forever. Thank you for your unwavering belief in me, your love, honesty and infinite patience. I hope to be your light, all my life.

The chain of my gratitude would be definitely incomplete if I do not thank its first cause, The Prime Mover. Deepest and most sincere gratitude for being extraordinarily benevolent to me.

July 2005

Gitanjali Yadav