

ACKNOWLEDGMENTS

The thesis is the result of many experiences I have encountered at Indian Institute of Technology (Banaras Hindu University) from remarkable individuals who I also wish to acknowledge. First and foremost I wish to thank my supervisor, Prof. Neeraj Sharma, Coordinator School of Biomedical Engineering. I was a beginner in the field of image processing when I started my Ph.D. He has taught me, both consciously and unconsciously, how good medical image processing can be done. I am thankful to all his contributions of time, and ideas in algorithm developments. The enthusiasm and positive attitude towards the work and life were contagious and motivational for me during tough times in the Ph.D. pursuit. He has given the moral support and the freedom I needed to work.

Further, I am very thankful to my co-supervisor Dr. Ashish Verma, Senior Radiologist at Institute of Medical Sciences, Banaras Hindu University. He has helped to explore the real challenges in the diagnosis. He was always available for the discussion even in his busy hours at the hospital and medical school. He is an excellent and rare example of a successful radiologist, professor, and researcher. I am very fortunate that he consistently guided me throughout the work.

My thesis evaluation committee guided me during all this time. Thanks to Prof. S. K. Singh, Department of Computer Sciences and Dr. Shiru Sharma, School of Biomedical Engineering for being my major advisors. Their comments and suggestions during my work progress presentation improved the quality of research work. Thank you, Mrs. Raichelamma Louis, Technical Staff at MRI scanning center at University hospital. She helped me in the

collection of MRI data for different cases. I would also like thankful to office staff, School of Biomedical Engineering, who have been supportive in every way.

My sincere thanks to all Professors of the School of Biomedical Engineering for their advice and motivation. I express my gratitude to Director, Deans, and Registrars for their direct and indirect support. I gratefully acknowledge the funding sources Ministry of Human Resources and Development, Government of India that made my Ph.D. work possible.

For this thesis, I would like to thank anonymous reviewers for their valuable time to read the thesis and their suggestions.

The past group members of the laboratory that I have had the pleasure to work with are Dr. Sanjay Saxsena, Dr. MK Chowdhury, Dr. Anuj Srivastava Dr. Ankit Kajaria and Dr. Anuranjeeta. There are my seniors, mentor in many ways Dr. Nishant Kr. Singh, C. K. Balavigneswaran, Chandan Kumar, Jitendra Parihar, and Kausal Kr. Mahato motivated and helped me all the time.

A special group is not yet mentioned because they deserve extra attention are my dear juniors. I praise the enormous amount of help from Romel Bhattacharjee, Uvanesh K, and Chiranjeev Sagar. I also recognize the support from Sumedha Mukharjee, Alok Tiwari, Sumit Tripathi, Nitesh Singh Malan, Taresh Sarvesh Sravan and Ravi Pratap Singh.

My time at IIT (BHU) was made enjoyable in large part due to the friends that became a part of my life. I am grateful for the time spent with friends Kiran Y. Vajanthri, Shailendra Singh, Gaurav Kumar, and Dr. Durgesh Singh.

Lastly, I would like to thank my family for all their love, encouragement and trust. For my parents who supported me in all my pursuits. There are no words to express my gratitude for

all the selfless efforts they made. My thanks to dear brother, Nirdosh Singh working at ZS Associates, helped in the preparation of the presentations. I thank my sister Anita Singh for her love and encouragement. And most of all for my loving and supportive wife Archana Rajpoot whose faithful support during the Ph.D. is so appreciated.

Thank you.

- MUNENDRA SINGH