

# Acknowledgements

Obtaining a PhD has long been a dream of mine. This dream could not have come to fruition without the support of many of my well-wishers to whom I shall remain eternally grateful. Here, I would like to acknowledge their invaluable support in aiding this achievement.

I wish to incorporate *Sahadharminī* (companion soul) and *Bandhu-Mithradhikal* (relatives and friends) into the classical quartet of support pillars — *Matah* (mother), *Pitah* (father), *Guru* (teacher), *Deivam* (God) — commonly attributed as reasons for one's success in ancient Indian scriptures such as the Vedas, Shastras, Charitras, Itihasas and Purāṇas. Whilst making this personal amendment, I would like to de-emphasise any connotations of hierarchy amongst these support pillars, since they all play equally important roles in one's life.

During these four years, the level of support accorded by my wife Parvathy Chittur Subramanianprasad cannot be described in mere words. She voluntarily shouldered the affairs of responsibility within the family so that I could focus solely on my research. At this prime of her youth, she has sacrificed so many material comforts and happily lived a relatively austere life by humbly accepting the financial constraints that are part and parcel of a student's life. In the same vein, I owe a lot to my parents Shri Gopalakrishnan P. K. and Smt. Ananthalakshmi G. It has been ten long years since I departed from Indian shores in pursuit of higher studies. During all those years, despite ill-health and missing my presence at home, they have always urged me to carry on and complete my studies. Many a time, I have hopelessly felt as being incomplete owing to my failings to fulfil basic duties of a son towards his parents, the least of which is spending quality time with them. However, my parents have always brushed aside their physical and financial difficulties to put my success above rest.

It is needless to explain the crucial role of academic supervisors in the life of a doctoral candidate. I was extremely lucky to be bestowed with not just one, but two amazing supervisors here at Imperial College London — Dr Gregory J. Offer and Dr Monica Marinescu. I have immensely benefited from their supervision, both from technical and personal perspectives. Even during moments of sheer despair, my supervisors had immense faith that I shall pull through. Their unflinching support contributed in no small measure for this success of mine. I also wish to acknowledge Dr Davide M. Raimondo who served as my unofficial supervisor and allocated months of his personal time for my research, often well outside regular working hours. I also wish to express my gratitude to Dr Gregory L. Plett who has always generously offered his technical expertise and guidance on all my research ideas. I am thankful to Dr Teng Zhang who mentored me in my initial days here and without his feedback, I could not have published my first journal article.

Although my interaction with them has sadly been on the wane in recent years, I am lucky to be a recipient of the blessings of my thatha (Shri Hariharan S) and patti

## ACKNOWLEDGEMENTS

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(Smt. Parvathi Hariharan), my affectionate grandparents, who have lived a life of humility, adhering to time-honoured traditions whilst seeming to have an endless reserve of love to bestow. Although I regret not having had a deeper relationship with him, I am immensely fortunate to have benedictions of the noble soul and towering figure, Acharyan Shri C R Krishna Iyer, affectionately known as 'thathanna', who has recently attained the lotus feet of Lord Guruvayoorappa. Though I have not yet attempted to imbibe the spiritual hints bequeathed by him, I hope to be a worthy beneficiary of its legacy with passage of time.

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Members of my extended family have long been staunch supporters of my educational aspirations. I vividly recollect the day I offered *namaskaarams* to Kaimal Chithappa before my first journey outside India prior to commencing Masters' studies at Virginia Tech. Shri Keshava Kaimal has been a strong motivator and was one of the earliest in my family to instigate a passion for engineering in me. His erudite teachings to me, such as the translation of 'Agnayeh, ithanna mamah (Oh Agni! This is not for me; this is for the society)' still rings in my ears and I shall strive to be worthy of this.

I am immensely thankful to my sister, Smt. Radhika Balaji for constantly cheering me up. Not for a moment has her belief in me wavered, and I am relieved that I did not let her down. I would like to express my gratitude to Smt. Usha Prasad whose calmness and compassion were a solace during difficult personal times, and to Smt. Radha Ramaswamy, whose enthusiasm has been a buoyant motivator. I wish to thank Balaji Anna, Shri Ramaswamy Krishnan Chittur (Ramesh) and Dr Sandeep Sangameswaran, all of whom have been more than what even brothers could be and have always lent their support throughout.

Despite not having interacted much with her, the abilities of our beloved Manni Ammal from Chittur remind me that one should not be carried away by one's achievements. In India, a female attending school in the pre-independence era, particularly in a rural Kerala village, is virtually unheard of. Not only did Manni top her high-school grades, she can reel off the Nobel-winning *Gitanjali* in fluent English, despite being hampered by the age-related afflictions of a nonagenarian. On the same note, I bow before the vast knowledge and humility of Shri Ramaswamy C. K. and Smt. Uma Sangameswaran which have endlessly inspired me.

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