Acknowledgements

I would like to thank my advisor, John Hall, for his guidance. He has demonstrated to me how to think critically as an engineer and taught me how to be an independent researcher. I am grateful to have his support.

Special thanks to Professor James Beck for his teachings and introductions to MODE-ID and the Bayesian probabilistic framework, both of which have transformed the way I view system identification problems. Much thanks to Professor Tom Heaton for his informative discussions on dealing with field data. He has always made himself available to listen to me during my graduate life.

Special gratitude to my undergraduate advisor, Ziyad Duron, for his years of mentoring. I am appreciative for the foundation he established in me during my undergraduate studies.

I would also like to thank my colleague Sai Hung (Joseph) Cheung for being an excellent TA and assisting me in numerical methods. His patience and clarity in explaining concepts has enabled me to learn a great extent.

I am indebted to my brother David and sister-in-law Chanlee for being my proofreaders and opening their apartment for extended stay. Special thanks to my girlfriend Angel who has been confident in my ability to do great things. Her encouragement and support have helped ease my graduate study.

I thank God for blessing me with my parents who have shown their unconditional love and provision throughout my life. I would not have accomplished anything without their continual care.

I am grateful for having the opportunity to pursue a graduate degree.