Acknowledgements

The research presented in this thesis was carried out under the supervision of Prof. Peter Y. K. Cheung and Prof. Wayne Luk.

Peter has provided invaluable guidance and support during this research. I would like to thank him for his boundless enthusiasm, help and motivation. Despite his numerous duties he always took time to discuss my research and provide helpful ideas. I would also like to thank him for securing a bursary, which made this research possible in the first place.

As a co-supervisor, Wayne has provided me with many helpful comments and suggestions. He was the one who convinced me to consider becoming a researcher, and was always there with useful comments when there was need for improvements.

I would like to thank all my colleagues from the Circuits and Systems group, the Department of EEE and from the Custom Computing Group in the Department of Computing for their invaluable comments, support and all the shared experiences of pleasure during my period of study.

In addition I would like to thank Prof. Michael J. Flynn for the very helpful meetings, as well as my examiners and anonymous reviewers for the rigorous feedback.

Moreover thanks to my family, to which I would like to dedicate this thesis. Firstly and foremost there are my parents: Frans and Rita for their support throughout my years in education. Secondly, my sister Els, for her motivation and recommendations

for improvement, especially during the final stages.

Additionally, I would like to thank my friends back home as well as here in London for their understanding, presence and encouraging friendship during my studies.

Last but not least, a special thanks to all of them that were close and helped to reach the end.