

ACKNOWLEDGEMENTS

I am mostly grateful to **ALLAH**, the most gracious, for all the blessings he gave me; starting with my wonderful family, the privilege of education and the strength and will to complete my M.Sc. thesis.

I have my **parents** to thank for being the person I am now. They provided me with the best education and never saved an effort to try and make a better person out of me. The warm and loving environment they provided me during my childhood paved the way into my transformation into an engineer and a researcher.

Many thanks go to my husband, **Mohammad**, the most supportive person ever. His love, support and encouragement gave me the strength to finish my work. I also thank my son, **Adam**, whose smiles make my day. My husband's and son's mere existence makes the world a better place.

I thank my supervisors **Prof. Ashraf Mamdouh and Dr. Hussein Ghouz** for their guidance.

My deepest appreciation goes to **Prof. Ashraf Mamdouh** for his great contribution regarding my work. His fruitful discussions and explanations shed light onto things when problems seemed unsolvable. The editing, comments and improvements he provided me with, transformed simple ideas into fine research.

I would like to thank my beloved sisters and my brother, my extended family and my friends for their support. Each and every one of them helped me along the way.

I gratefully acknowledge the staff of the Electronics and Communications Engineering Department for providing me with support

and convenience during my studies at the Arab Academy for Science, Technology and Maritime Transport.

Finally, I must thank my husband for proof-reading parts of the material.