Acknowledgments

I would like to express the deepest appreciation to my committee chair, Professor Zuhair Muhi-eldeen who has the attitude and the substance of a genius, he continually and convincingly conveyed a spirit of adventure in regard to research, and an excitement in ragard to teaching. Without his guidance and persistent help this thesis would not have been possible.

Also I would like to thank my Co-Supervisor Prof. Tawfiq Arafat for the help and contribution I got from.

Beside my advisers, I would like to thank the rest of my thesis committee: Prof. Tawfiq Alhussainy, Dr. Wael Abu Dayyih and prof. Husni Twaj for their encouragement, insightful comments and great supports.

Many thanks to Dr. Mohammed Ghattas for his efforts to complete docking studies.

I would like to thank my family, especially my mother and father, my grandfather and grand mother, Dr. Mohammed, Dr. Reem and Zaid for always believing in me, for their continuous love and their supports in my decisions. Without whom I could not have made it here.

My greatest appreciation goes to Rafal Alsabbagh, who was always a great support in all my struggles and frustrations in my thesis, and for being a great reliable person to whom I could always talk about my problems and excitements. Thanks her for questioning me about my ideas, helping me think rationally and for solving my problems.

Thanks to my supportive friends Ibrahim and Ragheed who made the lab a friendly environment for working.