

ACKNOWLEDGMENT

The author would like to thank to Dr. Donald R. Drew, the chairman of the advisory committee, for his time dedication, guidance and support as the dissertation is in progress. The author would like to express his thankful recognition to all the committee members, including Dr. Antonio A Trani, Dr. Wei H. Lin, Dr. Michel W. Van Aerde, Dr. Surot Thangjitham, and Dr. Dusan Teodorovic for their time dedications and valuable suggestions.

The author would like to extend his gratitude to all of his family members who have been a great inspiration to his life. Special thanks are also offered to all friends at Virginia Tech and in Thailand who have always been understanding and supportive.

Any shortcomings or weaknesses, which remain in this dissertation must necessarily be attributed to the author.