

## ACKNOWLEDGEMENTS

I am deeply grateful to the individuals who have played a significant role in my academic journey.

First and foremost, I would like to express my sincere thanks to my advisor, Asst. Prof. Dr. Pantip Piyatadsananon, and my co-advisor, Dr. Tanakorn Sritarapipat, for their invaluable patience and feedback during my study at the School of Geoinformatics, Institute of Science, Suranaree University of Technology.

I would also like to extend my sincere thanks to Prof. Dr. Santi Maensiri, Asst. Prof. Dr. Pipat Reungsang, Dr. Siripon Kamontam, and Dr. Nobphadon Suksangpanya for serving on my thesis committee and providing valuable feedback and suggestions that shaped my research. I am grateful to Assoc. Prof. Dr. Suwit Ongsomwang, Asst. Prof. Dr. Sanya Sarapirom, and Assoc. Dr. Songkot Dasananda for their guidance and suggestions.

Furthermore, I am grateful to my classmates, fellow students, and the staff of the School of Geoinformatics for their support and collaboration throughout my studies. My dear friends have also been a constant source of support and encouragement, which has been vital to my academic success.

I would like to express my deepest gratitude to my parents for their unwavering motivation and support throughout my study period.

Lastly, I would like to thank the Science Achievement Scholarship of Thailand (SAST) for their financial support during my bachelor's, master's, and Ph.D. studies.

Apinya Boonrang