Notice of the Final Oral Examination
for the Degree of Master of Science

of

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BSc (University of Taif, Saudi Arabia, 2012)

“Tradeoffs and Challenges in Maintaining Location Privacy in Location-Based Services”

Department of Computer Science

Tuesday, April 28, 2020
9:30 A.M.
Remote Defence

Supervisory Committee:
Dr. Yvonne Coady, Department of Computer Science, University of Victoria (Co-Supervisor)
Dr. Fayez Gebali, Department of Computer Science, UVic (Co-Supervisor)

External Examiner:
Dr. Dandan Huang, Co-Founder and CTO, Aidom

Chair of Oral Examination:
Dr. Francis Zwiers, Department of Mathematics and Statistics, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies
Abstract

Protecting location privacy in digital services could not be more important. This research aims to protect the location of people who suffer from opioid overdose while seeking help from public, emergency services and professional responders with Nalox-one kit. A location privacy protection mechanism based on dummy locations was developed in this research to fulfil the requirement of location privacy. Unlike many dummy locations protection mechanisms that generate dummies based on a real location, the location privacy mechanism was developed in this research to generate dummies based on the nearest public location of the service requester. Additionally, dummies are generated locally on the requester side to eliminate the need for setting up a dummy generation service online that asks the requester to send his/her real location. An iOS application, SimpleNal-Pal was built to test the developed location privacy protection mechanisms. Twenty five testing cases were preformed. The results show that the developed location privacy protection mechanism may be effective in generating dummies that cannot be reversed to the requester’s real location.