



**University
of Victoria**

Graduate Studies

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

of

GIANCARLO KLEMM CAMILO

BSc (University of Victoria, 2019)

“Demand Analysis and Privacy of Floating Car Data”

Department of Computer Science

Tuesday September 3, 2019

2:00 P.M.

Engineering Computer Science Building
Room 468

Supervisory Committee:

Dr. Kui Wu, Department of Computer Science, University of Victoria (Supervisor)
Dr. Baljeet Malhotra, Department of Computer Science, UVic (Member)

External Examiner:

Dr. Hong-Chuan Yang, Department of Electrical and Computer Engineering, UVic

Chair of Oral Examination:

Dr. Nathan Lachowsky, School of Public Health and Social Policy, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

This thesis investigates two research problems in analyzing floating car data (FCD): automated segmentation and privacy. For the former, we design an automated segmentation method based on the social functions of an area to enhance existing traffic demand analysis. This segmentation is used to create an extension of the traditional origin-destination matrix that can represent origins of traffic demand. The methods are then combined for interactive visualization of traffic demand, using a floating car dataset from a ride-hailing application. For the latter, we investigate the properties in FCD that may lead to privacy leaks. We present an attack on a real-world taxi dataset, showing that FCD, even though anonymized, can potentially leak privacy.