



University
of Victoria

Graduate Studies

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

of

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BE (Rashtrasant Tukadoji Maharaj Nagpur University, 2010)

“SmartGrocer: A Context-Aware Personalized Grocery System”

Department of Computer Science

Monday, June 11, 2018

9:00 A.M.

Engineering and Computer Science Building
Room 468

Supervisory Committee:

Dr. Hausi Müller, Department of Computer Science, University of Victoria (Supervisor)
Dr. Ulrike Stege, Department of Computer Science, UVic (Member)

External Examiner:

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Dr. Restrepo-Gautier, Department of Hispanic and Italian Studies, UVic

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Abstract

Grocery shopping is a routine task that users perform to fulfill their needs for foods. Every time users are expected to follow some repetitive steps before planning their grocery trips to save their money and time. These steps are meal planning, checking out the ingredients inventory available in users' homes, creating a grocery list based on their meal plan and ingredients inventory status, and looking out for deals or offers, which can be utilized in their grocery purchases. However, this repetitive task involves users' manual effort and a considerable amount of time to carry out effectively, that makes this task difficult to accomplish every time considering their busy modern lifestyles. Moreover, as many grocers begin to leverage technology, they have an opportunity to understand the relationship between the users' buying behavior from their purchasing history and stores' grocery information to make profit-driven decisions and promote the reduction of food wastage in stores.

This thesis presents SmartGrocer, a context-aware personalized grocery system that dynamically gathers users' context including their past purchasing history and budget, and stores' context including clearance grocery inventory that consists of those ingredients which are soon-to-expire or being on sale to recommend personalized coupons to users. The personalized coupons are dynamically applied to recipes thereby reducing their cost and recommending them according to the users' food budget. Recommendation of personalized coupons to users is an effective promotional strategy to not only saving the users' money but also promoting the reduction of food wastage in stores which eventually drives more profit to the grocery retail businesses. SmartGrocer also automates the whole process of creating a grocery list with minimal effort and time on behalf of the user by leveraging the users' and stores' context.