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

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BTech (Uttar Pradesh Technical University, 2014) 

“CAPRecipes: A Context-Aware Personalized Recipes Recommender for Healthy and Smart Living” 

Department of Computer Science 

Monday, June 11, 2018 
1:30 P.M. 
Engineering and Computer Science Building 
Room 468 

Supervisory Committee: 
Dr. Hausi Müller, Department of Computer Science, University of Victoria (Supervisor) 
Dr. Sudhakar Ganti, Department of Computer Science, UVic (Member) 

External Examiner: 
Dr. Issa Traoré, Department of Electrical and Computer Engineering, UVic 

Chair of Oral Examination: 
Dr. Dan Russek, Department of Hispanic and Italian Studies, UVic 

Dr. Stephen Evans, Acting Dean, Faculty of Graduate Studies
Abstract

In the past few years, the general work habits of people have changed dramatically, raising concerns about their well-being. Numerous health-related problems have been observed from their health records such as obesity, diabetes or heart diseases, and it is due to unhealthy eating. But these problems can be prevented if people start eating healthy food. The population, in general, is also realizing that healthy eating is important for their well-being. However, they usually resist because they assume that healthy food is not tasty and they do not want to comprise their taste preferences. Moreover, they have various other considerations that become barriers for them while selecting a healthy recipe. These are: (1) their complex, restrained needs (i.e., allergies and nutritional goals), (2) their strict lifestyle or dietary preferences (i.e., their desire to eat only vegan or vegetarian food), (3) lack of knowledge about how to choose healthy recipes while exploiting their taste preferences, (4) choosing recipes that maximize the use of available ingredients in their kitchen. Numerous researchers have been working in this field and developed various applications and systems to suggest healthy recipes.

Apart from unhealthy eating, household food wastage has become a public problem, and some of the causes, which trigger it are users' taste preferences (i.e., disliking of the food), and not cooking food before ingredients expiry dates. Thus, we propose a personalized recipes recommender system as a proof of concept called CAPRecipes, which is based on context-awareness. It tackles the aforementioned barriers and improves the users' experiences by providing the recommendations of personalized recipes with minimal efforts while exploiting their dynamically changing contexts. CAPRecipes also helps in the reduction of food wastage as it first shows the recipes, which contain the ingredients that are expiring soon and matches with users' taste preferences. It also considers that recipes do not violate users' health restrictions and nutritional goals, and use the maximum number of available ingredients in users' kitchen. The proposed system gathers users' taste preferences by exploiting two third-party social media applications (i.e., Facebook and YouTube) and collaborative-based filtering algorithm. This thesis also explores various natural language processing techniques such as text analysis and POS tagging to identify the recipes' preferences and to find the most relevant match for each recipe or ingredient having different names.