

Constructing Social Networks Based on Image Analysis

by

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Master of Science in Software Engineering

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Approved by _____
Supervisor

Date _____

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University of Macau

Abstract

Constructing Social Networks Based on Image Analysis

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Master of Science in Software Engineering

Nowadays, more and more people would like to play the social network. Social network is a set of people (or organizations or other social entities) connected by a set of socially-meaningful relationships. People can share their life experience, notify friends about themselves, play game and share photos with their friends internationally. But before interacting with each other, they need to form the relationship. This thesis presents the idea of construct a social network that makes use of the image analysis. In traditional social network application, friend relationship can only be established with text-based information, such as email, name or other personal information. However, we found that only text-based information is insufficient in social network. For example, if user A and user B meet in an event and they take a photo with each other but they forget to get the contact information. In the current social network application, they cannot to establish relationship through the social network. But in my concept, we can adopt face recognition to solve such problem. With such technology, friend relationship can be established without the need of having the text-based information of a user, friend recommendation algorithm can be more accurate, and face tagging can be done automatically.

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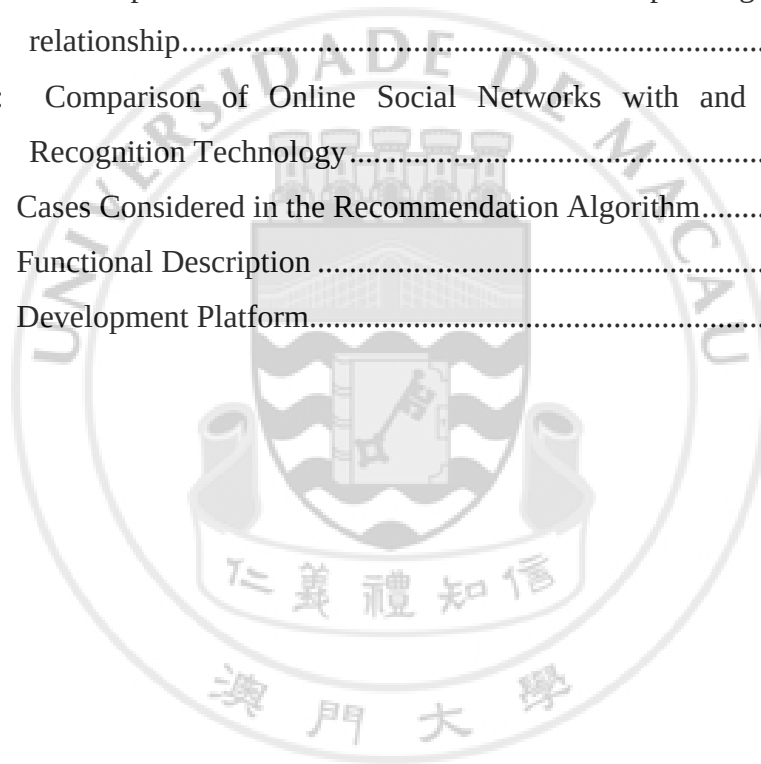
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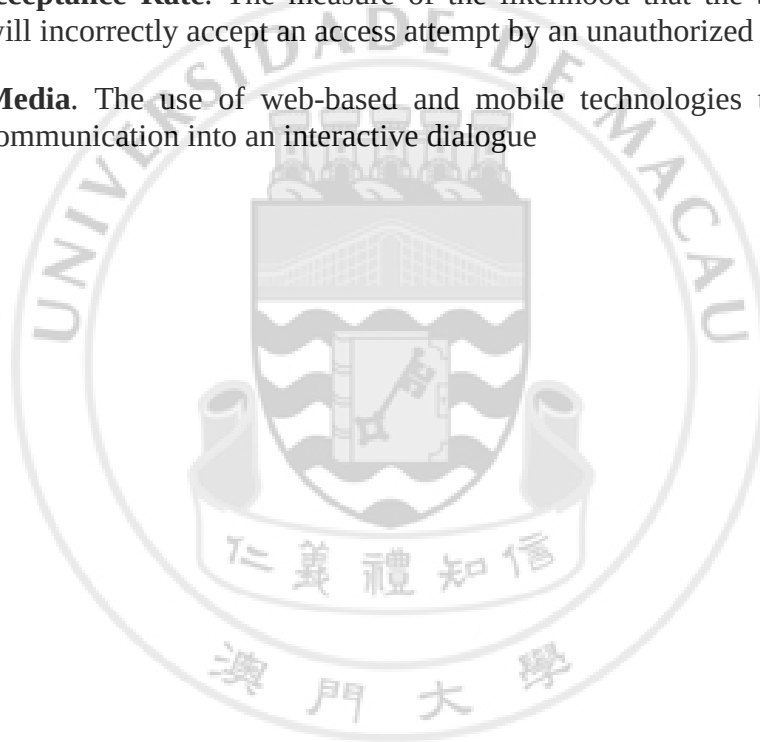
GLOSSARY

Ego networks. A network that consist of a focal node ("ego") and the nodes to whom ego is directly connected to (these are called "alters") plus the ties, if any, among the alters

Facial identity. The facial feature that was stored in the facial database for the future use of the identifying

False Acceptance Rate. The measure of the likelihood that the biometric security system will incorrectly accept an access attempt by an unauthorized user.

Social Media. The use of web-based and mobile technologies to turn human to human communication into an interactive dialogue



LIST OF ABBREVIATIONS

FAR. False Acceptance Rate

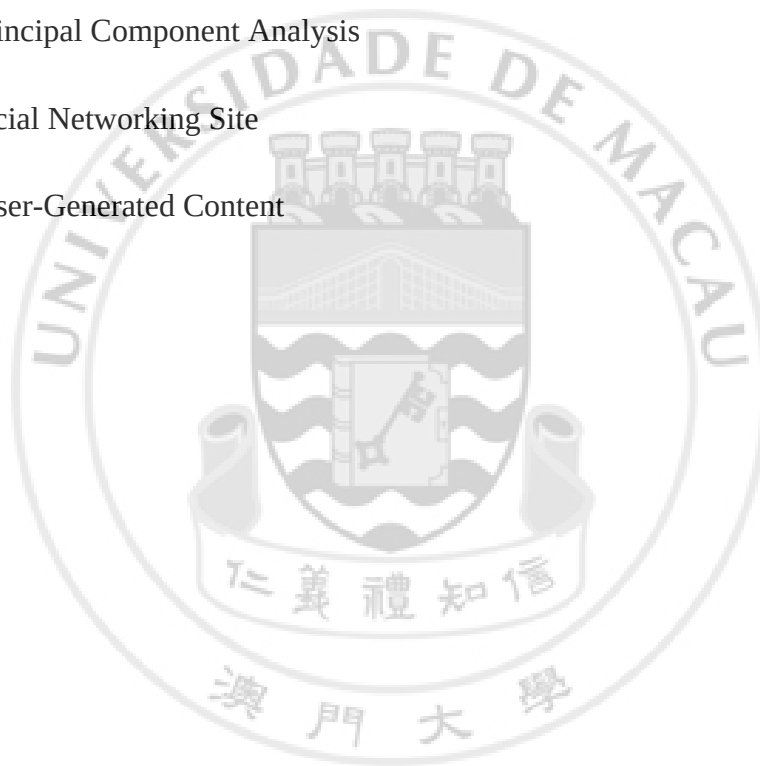
ICA. Independent Component Analysis

MDS. Metric Multidimensional Scaling

PCA. Principal Component Analysis

SNS. Social Networking Site

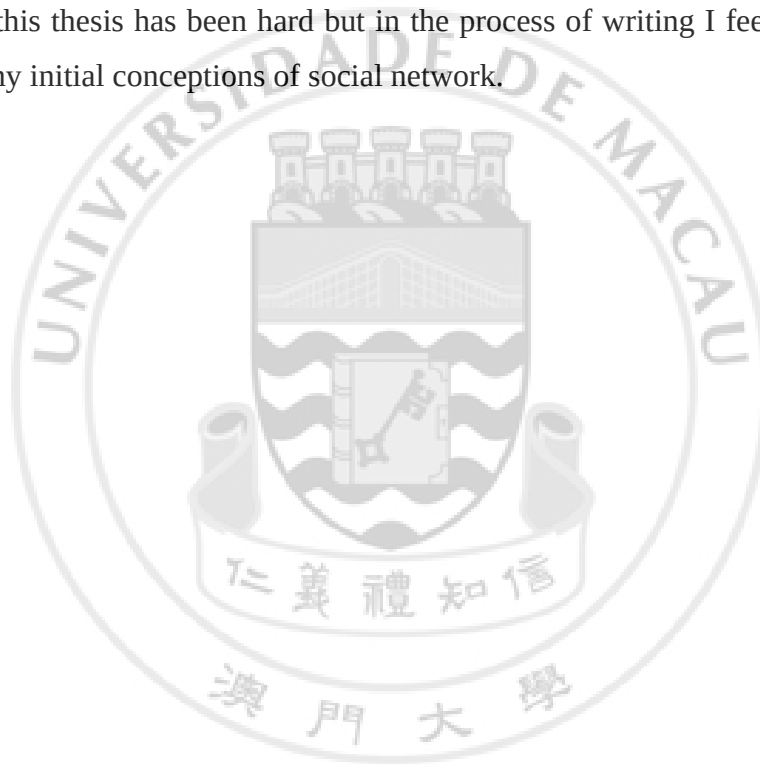
UGC. User-Generated Content



PREFACE

This thesis is submitted in partial fulfillment of the requirements for a degree of Master of Science in Software Engineering at Faculty of Science and Technology, University of Macau. It contains work done from September 2010 to February 2012. My supervisor on this thesis has been Dr. Robert P. Biuk-Aghai, assistant professor.

Writing this thesis has been hard but in the process of writing I feel I have learned a lot and my initial conceptions of social network.



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The author wishes to thank my supervisor Dr. Robert P. Biuk-Aghai, assistant professor. He gave me a lot of trust and flexibility on the project. Without him, I could not have dealt with such a challenging project; without him, I could not have such an amazing experience in the research; without him, I could not complete this project in time.

Moreover, all concept and implementation in this thesis and the previous journal paper are done by me. Since the previous journal paper is my first journal paper, I need someone to help me during the publication and I'm very appreciated for assisting me in editing, formatting and testing in the previous journal paper which is Jack C. K. Tang, Angus K. Y. Wong and Philip I. S. Lei.

Last but not least, I really appreciated my wife, Christy Chan. Moreover, I would like to show my gratitude to my parents. They gave me a lot of help for my living.

Today I finished my thesis and I will continue to challenge myself in the future with what I learned. This is not the end but only the start.

DEDICATION

The author wishes to dedicate this thesis to my family, including my father, my mother and my wife.

