FINGERPRINTS FOR INDOOR LOCALIZATION

FINGERPRINTS FOR INDOOR LOCALIZATION

By QIANG XU

A Thesis Submitted to the School of Graduate Studies in Partial Fulfillment of the
Requirements for the Degree Doctor of Philosophy

DOCTOR OF PHILOSOPHY (2017) McMaster University

(Computer Science) Hamilton, Ontario, Canada

TITLE: Fingerprints for Indoor Localization

AUTHOR: Qiang Xu

M.Sc., (Computer Science)

University of Chinese Academy of Sciences, Beijing, China

SUPERVISOR: Dr. Rong Zheng

NUMBER OF PAGES: xi, 7

To my family

Abstract

Location-based services have experienced substantial growth in the last decade. However, despite extensive research efforts, sub-meter location accuracy with low-cost infrastructure continues to be elusive.

Acknowledgements

Thanks to ...

Contents

List of Figures

List of Abbreviations

AP   Access Point

DTW Dynamic Time Warping

GP   Gaussian Process

GPS Global Positioning System

IMU Inertial Measurement Units

IPS Indoor Positioning System

LBS Location Based Service

MCS Mobile Crowdsensing

MEMS Micro Elecro-Mechanical Systems

PDR Pedestrian Dead Reckoning

QR   Quick Response

RSS Received Signal Strength

VLC Visible Light Communication

Declaration of Academic Achievement

The work presented here is the result of research performed by myself during the years 2013-2017. Results which have substantial contributions from other authors are clearly prefaced and the contributions of those authors are indicated.

Chapter 1

Introduction

1.1 Introduction-Section 1

1.2 Introduction-Section 2

Chapter 2

Related Work

2.1 Related Work-Section 1

Reference[1]

2.2 Related Work-Section 2

Reference[2]

Chapter 3

Concluding Remarks

3.1   Conclusion-Section 1

3.2   Conclusion-Section 2

Bibliography

[1] G. Bradford, B. Dunn, M. Dickens, Z. Sun, and J. N. Laneman, "Demonstration of cooperative diversity using a custom software-defined radio prototype," in *MobiHoc*, 2009, pp. 323–324.

[2] Y. AKAMA, "Gaussian mixture models and vc dimensions," 2009.