Martin Richards

How to write a dissertation in LaTeX

Computer Science Tripos – Part II

St John's College

March 23, 2015

Proforma

Name:	**Martin Richards**
College:	**St John's College**
Project Title:	**How to write a dissertation in LaTeX**
Examination:	**Computer Science Tripos – Part II, July 2001**
Word Count:	**1587**[1] **(well less than the 12000 limit)**
Project Originator:	Dr M. Richards
Supervisor:	Dr Markus Kuhn

Original Aims of the Project

To write a demonstration dissertation[2] using LaTeX to save student's time when writing their own dissertations. The dissertation should illustrate how to use the more common LaTeX constructs. It should include pictures and diagrams to show how these can be incorporated into the dissertation. It should contain the entire LaTeX source of the dissertation and the makefile. It should explain how to construct an MSDOS disk of the dissertation in Postscript format that can be used by the book shop for printing, and, finally, it should have the prescribed layout and format of a diploma dissertation.

Work Completed

All that has been completed appears in this dissertation.

[1] This word count was computed by `detex diss.tex | tr -cd '0-9A-Za-z \n' | wc -w`

[2] A normal footnote without the complication of being in a table.

Special Difficulties

Learning how to incorporate encapulated postscript into a LaTeX document on both Ubuntu Linux and OS X.

Declaration

I, [Name] of [College], being a candidate for Part II of the Computer Science Tripos [or the Diploma in Computer Science], hereby declare that this dissertation and the work described in it are my own work, unaided except as may be specified below, and that the dissertation does not contain material that has already been used to any substantial extent for a comparable purpose.

Signed [signature]

Date [date]

Contents

List of Figures

Acknowledgements

This document owes much to an earlier version written by Simon Moore. His help, encouragement and advice was greatly appreciated.

Chapter 1

Introduction

This dissertation describes the implementation and evaluation of an activity classifier using accelerometer data captured simutaneously from a smartphone and a smartwatch.

The classifier using data from both sources outperforms a classifier using only smartphone data, and the classifier that uses only smartphone data outperforms a classifier using only smartwatch data.

1.1 Motivation

Wearable devices are set to become the next big technology trend. Wrist-worn wearables, including smartwatches, formed the majority of the 21m wearable devices sold year. Analysts predict the Apple Watch will sell between 20m and 40m in its first nine months [2].

One of the primary appeals of wearables is their ability to sense. Like smartphones before them, smartwatches will enhance the ability to collect data about people. This data is important to consumers, who purchase specialised wearables to measure activity, sleep patterns and caloric intake. The data's research potential is also laudable — Apple's ResearchKit will allow medical researchers to access data about their patients with greater ease than ever before [1].

Accurate activity classification therefore has many academic and commercial applications. To be marketable, activity classification solutions must use current consumer devices. This dissertation details the implemenation of accelerometer data collection using current consumer devices (an Android smartphone and An-

droid Wear smartwatch), classifies a user's activities and compares this classification accuracy to using only smartphone data and using only smartwatch data.

1.2 Challenges

1.3 Related Work

Chapter 2

Preparation

This chapter is empty!

Chapter 3

Implementation

empty

3.1 Tables

Here is a simple example[1] of a table.

Left Justified	Centred	Right Justified
First	A	XXX
Second	AA	XX
Last	AAA	X

There is another example table in the proforma.

[1] A footnote

Chapter 4

Evaluation

4.1 Printing and binding

Use a "duplex" laser printer that can print on both sides to print two copies of your dissertation. Then bind them, for example using the comb binder in the Computer Laboratory Library.

Chapter 5

Conclusion

I hope that this rough guide to writing a dissertation is LaTeX has been helpful and saved you time.

Bibliography

[1] *ResearchKit for Developers*. Mar. 23, 2015. URL: https://developer.apple.com/researchkit/.

[2] "Wearable technology: The wear, why and how". In: *The Economist* (Mar. 14, 2015). URL: http://www.economist.com/news/business/21646225-smartwatches-and-other-wearable-devices-become-mainstream-products-will-take-more.