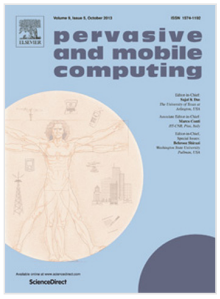
Accepted Manuscript



Differences in smartphone usage: Validating, evaluating, and predicting mobile user intimacy

Mattia Gustarini, Marcello Paolo Scipioni, Marios Fanourakis, Katarzyna Wac

PII: S1574-1192(16)30068-2
DOI: http://dx.doi.org/10.1016/j.pmcj.2016.06.003
Reference: PMCJ 709

To appear in: *Pervasive and Mobile Computing*

Received date: 22 June 2015
Revised date: 3 May 2016
Accepted date: 7 June 2016

Please cite this article as: M. Gustarini, M.P. Scipioni, M. Fanourakis, K. Wac, Differences in smartphone usage: Validating, evaluating, and predicting mobile user intimacy, *Pervasive and Mobile Computing* (2016), http://dx.doi.org/10.1016/j.pmcj.2016.06.003

Differences in Smartphone Usage: Validating, Evaluating, and Predicting Mobile User Intimacy

Mattia Gustarini[a], Marcello Paolo Scipioni[b], Marios Fanourakis[a], Katarzyna Wac[a,c]

a. University of Geneva (UNIGE), Informatics University Center, Information Science Institute, 1227 Carouge, Geneva, Switzerland, {firstname.lastname}@unige.ch

b. Università della Svizzera Italiana (USI), Faculty of Informatics, Ubiquitous Computing, 6904 Lugano, Ticino, Switzerland, marcello.paolo.scipioni@usi.ch

c. University of Copenhagen (UCPH), Department of Computer Science, 2100 København, Denmark, wac@di.ku.dk

Abstract

We analyze the users' intimacy to investigate the differences in smartphone usage, considering the user's location and number and kind of people physically around the user. With a first user study we (1) validate the intimacy concept, (2) evaluate its correlation to smartphone usage features and (3) we computationally model it. Shorter, more frequent, and less engaging interactions take place when intimacy is lower, while longer, less frequent, and engaging interactions when intimacy is higher. With a second user study, we investigate the intimacy predictability in practice. Location-time features are predictive for the intimacy, and other smartphone-based features can improve the intimacy prediction accuracy.

Keywords: user smartphone engagement; user context; user location; people around user; RPC ranking classification

1 Introduction

Smartphones follow us everywhere in our everyday life. People have become accustomed to using smartphones at home as well as at work, in public transportation or while walking in the city, sitting in a pub or on the go, with the family or alone, on vacation, and in many more situations. A recent study evaluated that people use their smartphones more than 200 times a day [1]; however people do not use