

Predicting Mobile Interruptibility

Fengpeng Yuan
Dept. of Computer Science

4/3/2017 at 10:00 am
CoRE 503

Abstract

The ubiquitous presence of mobile devices has led to an inevitable increase in the number of notifications. It can be very disruptive when notifications interrupt users at an inappropriate time. For example, irrelevant notifications that arrive when you are in an important meeting could be obtrusive. Therefore, when to interrupt the user becomes a defining problem in the interaction between users and mobile devices. Previous work classified interruptibility as a binary status, interruptible or not interruptible. However, our work shows that this is not sufficient to accurately measure users' availability towards interruptions. We present the design, implementation and evaluation of a personality-dependent two-stage hierarchical model to predict users' interruptibility intensity. To the best of our knowledge, our work is the first to introduce personality traits into the interruptibility prediction model. We also solve the important problem in ubiquitous computing, how to enable predictions before individually training on the user? Our model uses the data of people who share similar personality with the user to predict before training to the particular user. Overall, our model can achieve an accuracy of 66.1% for predicting interruptibility intensity, and 75% for first-stage binary prediction. To investigate the effects of different factors on interruptibility, we applied a hierarchical Bayesian approach to analyze the data. We found that people's moods, current places and current involved activities have significant effects on interruptibility. We also found that the relation between interrupters and interruptees and the interruption duration play an important role in estimating interruptibility.

Defense Committee: Prof. Janne Lindqvist (Chair), Prof. Richard Martin, Prof. Wade Trappe, Prof. Guiling Wang (New Jersey Institute of Technology)