

Predicting Mobile Interruptibility

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12/6/2016 at 10:40 am
CoRE 503

Abstract

The scope of users receiving interruptions has expanded dramatically with the widespread use of mobile devices, such as smartphones and smartwatches. Generally, mobile devices notify users of newly available information frequently via notifications. It can be very disruptive when these notifications interrupt users at an inappropriate time. For example, irrelevant notifications that arrive when you are in an important meeting could be obtrusive and annoying. Therefore, when to interrupt user becomes a defining problem in the interaction between users and mobile devices. In practice, as our work shows, people usually express different levels of interruptibility at different contexts. Previous work has classified interruptibility as a binary status, interruptible or not interruptible. 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 fine-grained Interruptibility. To the best of our knowledge, our work is the first to introduce personality variables into the interruptibility prediction model. We also solve the important problem in ubiquitous computing, how to enabled 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. To investigate the effects of different factors on interruptibility in the model, we applied hierarchical Bayesian approach to analyze the data extensively.

Defense Committee: Prof. Janne Lindqvist (Chair), Prof. Wade Trappe, Prof. Richard Martin, Prof. Guiling Wang (NJIT)