Anxiety Prediction Using Smartphone Logs

Lately, interest in mental health has increased. As of December 2015, companies with more than 50 workers are required to assess workers' stress, according to Japanese law. Maintaing workers' mental health has since been the focus. However, currently, stress is assessed once or twice a year through a questionnaire, and no continuous assessment has been conducted.

To enable continuous stress assessment without cost incurrence by workers, some researchers have focused on estimating the mental state though uses of smartphones. Since many people equip themselves with smartphones on a daily basis, use of smartphones as sensors can be less burdensome to users. In these studies, researchers extracted some feature values to estimate mental health states. It is necessary to extract feature values which reflect the change of use of smartphones dependent on the symptoms of mental health states. This is the challenging point.

In our research, we focus on the anxiety. We propose some feature values which is related to anxiety from sensor logs and application histories of smartphones, and aim to predict the anxiety state. We show the image of prediction of anxiety by smartphones in Figure 1. To predict the anxiety, there is a problem that of how many days should we learn the data to predict the anxiety in enough accuracy. We are investigating this problem now. We show the image of this problem in Figure 2.

We are going to present these results at a conference in May.

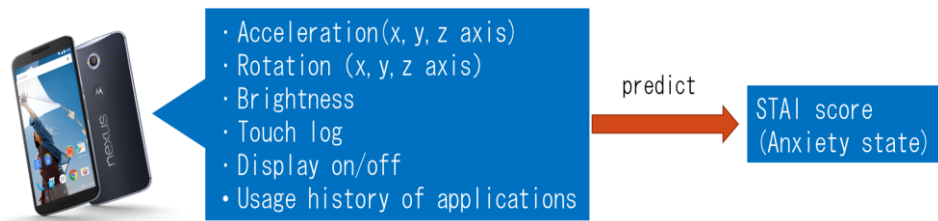Key Words: Mental health, anxiety, smartphone, sensor logs, application history
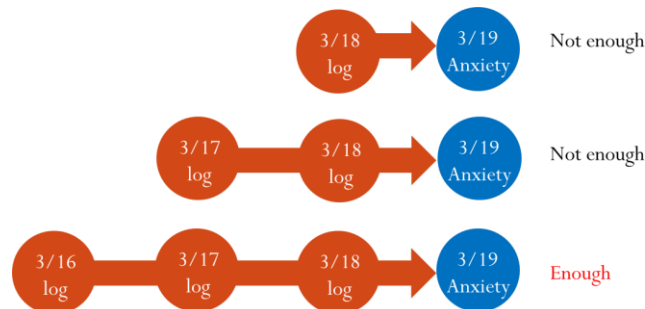


Figure 1: Prediction of anxiety by smartphones



Figure 2: The image of anxiety prediction problem