

Activity prediction via movement sensor

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1 Overview

Our goal is to predict everyday life activities using a wristband activity tracker equipped with a accelerometer. We are especially interested in predicting and distinguishing between different computer-related activities.

2 Sensors and data

The predictive data is supposed to consist of the movement information (mainly accelerometric data) measured at the wrist. Computer-related activities like programming, chatting, text-writing, browsing or playing games are to be predicted. Those activities can easily be monitored by installing programs on the test subjects computer that record the usage and activeness of other application, e.g. browser, word-processing program, text editor for programming and so forth. Since movement sensors are sensitive and different computer-related activities seem to exhibit different movement patterns along the hand-arm region, we are confident that different activities can be successfully predicted and distinguished.

3 Novelty

Some studies have shown that it is possible to distinguish between different activities like sleeping, walking or exercising using movement information [1]. However to our knowledge, computer-related activities have not been studied yet, at least not exclusively, as well as only with a wristband device.

4 Benefits

Distinguishing between different computer-related activities can be useful in a working context. It provides employers and researcher with an easy method to examine the different contents included within a particular job, e.g. the amount of correspondence versus the amount of coding a programmer spends his time on. The predictions could also be used for measuring personal productivity and preventing procrastination through intervention.

References

- [1] Oresti Banos, Juan-Manuel Galvez, Miguel Damas, Hector Pomares, and Ignacio Rojas. Window size impact in human activity recognition. *Sensors*, 14(4):6474–6499, 2014.