Prof. R. Wattenhofer

BA/MA/SA/Group/Lab:

Smart Watch Actigraphy

Sleep disorders are more common than many people would expect. Various sources report that over 50 million people in the U.S. are affected by chronic sleep disorders. Furthermore, scientists declare insufficient sleep to be a public health problem.

Traditionally, sleep studies are conducted in a sleep laboratory using a method called polysomnography which involves many electrodes being attached to a patient. For some applications, actigraphy has recently gained acceptance as a viable alternative. Actigraphy is a method of monitoring human rest/activity cycles using movement sensors often worn on the wrist. Although actigraphy is less reliable than polysomnography, its big advantages are the possibility of longer term studies and larger number of study participants. Besides being useful for the assessment and diagnosis of different sleep disorders and monitoring the effectiveness of corresponding treatments, actigraphy data can for instance be used to ensure that truck drivers are receiving an adequate amount of sleep.

To us it seems that actimetry sensors are just stripped-down versions of smart watches. Since in the future many people are expected to own a smart watch anyway, why do we need specialized devices for actimetry?

The goal of this project is to evaluate if an Android watch is a viable alternative to dedicated actigraphs. Furthermore, we would like to see some useful application which for instance warns users when they get too little sleep.

We are also interested to hear your own ideas how we could leverage wearables or smartphones to assess and improve our sleep rhythm and quality. Do not hesitate dropping by for a chat!

Requirements: Creative thinking and advanced programming skills are advantageous to successfully work on this topic. The student(s) should be able to work independently!

Interested? Please contact us for more details!

Contact

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