Ringvorlesung

Wearable Sensors in Human Health Monitoring

Project Experiences with Dementia Patients

22.05.2018
18:00 Uhr
Haus 1, 1.03 Aula

Wearable sensors have become increasingly accurate in measuring various aspects of health monitoring in humans. Individuals living with dementia often experience problematic agitated behaviors. There are many proven methods to intervene during agitated behavior outbursts, and the earlier these methods are used the better the results.

We are using off-the-shelf technology, smart watches and phones, to monitor the location of individuals in the facility and to measure physiological changes such as limb movements, vocalizations, and heart rate that happens during agitation state.

In this talk, we describe the results of an experiment where we have instrumented eight individuals in an assisted living facility with smart sensors running the software we developed. We compare our software's detection of agitation with observations made by trained students using the Cohen-Mansfield Agitation Inventory. While the sensor data was collected, each patient was observed by one nurse and one computer science student for four or more hours to record manual observations. As the software and selection of sensors is only a prototype system to investigate feasibility, the experiment was a success as several of the data streams correlate well with the students' observations. We identified the need for individual profiles of patients so that deviations from the normal behavior can be identified on a patient by patient basis.

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