Scale-space methods for live processing of sensor data

Abstract:
A temporal scale-space is a vector space spanned by time and a scale parameter, and by constructing the scale-space correctly a causal structure can be imposed on the scale-space. This enables early warning of significant changes in sensor data at an early time, and on any scale. We describe a feasibility study on how to use these ideas for live surveillance of monitoring processes such that important features can be visualized and users warned about changes at an early stage. Sensor data from motion sensors on patients with chronic obstructive pulmonary disease are used as the example of such system, where important pattern are found and visualized using significance plots.

Stichworte:
Actigraphy, Aged, Algorithms, Diagnosis, Computer-Assisted, Humans, Male, Pulmonary Disease, Chronic Obstructive, Reproducibility of Results, Sensitivity and Specificity

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