

## Distributed wireless sensors on the Human Body

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### Abstract

Advances in technology have led to development of various sensing, computing and communication devices that can be woven into the physical environment of our daily lives. Such systems enable on-body and mobile health-care monitoring, can integrate information from different sources, and can initiate actions or trigger alarms when needed. In this talk, we describe a collaborative signal processing scheme for physical movement monitoring with motion sensors. The signal processing consists of preprocessing, feature extraction and classification. We define a measure on feature "significance" as well as features' correlations. We characterize a graph model for collaborative signal processing based on the aforementioned measures, and illustrate how this model can be utilized to efficiently synthesize computation and communication for highly resource constrained wearable and mobile systems. We are examining the optimal positioning of sensors on the body for given physical activities, and focus on the segmentation and classification problem of the analysis of the continuous measurements of the observations obtained from the sensors. We have experimental data from different age subjects and show the individual differences amongst subjects.