Embedded Technosolutions

Venture of IIT Bombay & VJTI Alumni

Sleeping Posture Analysis for Prediction of Back and Neck Related Problems

ABSTRACT

Sleeping is one of the most important activities in our daily lives. However, very few people really understand their sleeping habits, which affect sleep related diseases such as sleep pane, back problems or even snoring. Most current techniques that monitor, predict and quantify sleep postures are limited to use in hospitals and/or need the intervention of caregivers. In this paper, we describe a system to automatically monitor, predict and quantify sleep postures that may be self-applied by the general public even in a non-hospital environment such as at a person's home. A Random Forest approach is adopted during training to predict and quantify sleep postures. After going through training procedures, a person needs only one sensor placed on the wrist to recognize the persons sleep postures. Our preliminary experiments using a set of testing data show about 90 percent accuracy, indicating that this design has a promising future to accurately analyse, predict and quantify human sleep postures.