Wearable devices: A Cleaned and Tidied Human Activity Dataset

Antecedents

The dataset described in this document results from a process of cleaning and tidying a dataset that was reconstructed from experiments originally published and described in [1]. In short, for these experiments, 30 volunteers (19-48 years old) performed six activities (WALKING, WALKING_UPSTAIRS, WALKING_DOWNSTAIRS, SITTING, STANDING, LAYING) wearing a smartphone. In these experiments, the original data was captured from the smartphone's accelerometer and gyroscope at a constant rate of 50Hz, and labeled manually. Once finished the cleaning and tidying process, the dataset described in this document is obtained.

Dataset Description

The dataset consists of a single file of 180 observations of 69 variables. These variables are described next.

SubjectId	Subject identifiers, in the range 1 to 30, identify the volunteer who performed the activity. Domain: Integers 1 to 30.
ActivityId	Activity identifiers, in the range 1 to 6. Described by the column ActivityName. Domain: Integers 1 to 6.
ActivityName	Activity names, each describing the corresponding activity identifier. Domain: String.

    1 - "WALKING"
    2 - "WALKING_UPSTAIRS"
    3 - "WALKING_DOWNSTAIRS"
    4 - "SITTING"
    5 - "STANDING"
    6 - "LAYING"

tBodyAcc-mean()-X, tBodyAcc-mean()-Y, tBodyAcc-mean()-Z	These three variables correspond to the averages of the respective 3-axial (X, Y, Z) body acceleration measurements, in the time-domain (t-prefix). Domain: float numbers.
tBodyAcc-std()-X, tBodyAcc-std()-Y, TbodyAcc-std()-Z	These three variables correspond to the standard deviation of the respective 3-axial (X, Y, Z) body acceleration measurements. Domain: float numbers.
tGravityAcc-mean()-X, tGravityAcc-mean()-Y, tGravityAcc-mean()-Z	These three variables correspond to the averages of the respective 3-axial (X, Y, Z) gravity acceleration measurements. Domain: float numbers.
tGravityAcc-std()-X, tGravityAcc-std()-Y, tGravityAcc-std()-Z	These three variables correspond to the standard deviation of the respective 3-axial (X, Y, Z) gravity acceleration measurements. Domain: float numbers.
tBodyAccJerk-mean()-X, tBodyAccJerk-mean()-Y, tBodyAccJerk-mean()-Z	These three variables correspond to the averages of the respective 3-axial (X, Y, Z) Jerk linear acceleration measurements. Domain: float numbers.
tBodyAccJerk-std()-X, tBodyAccJerk-std()-Y, tBodyAccJerk-std()-Z	These three variables correspond to the standard deviation of the respective 3-axial (X, Y, Z) Jerk linear acceleration measurements. Domain: float numbers.
tBodyGyro-mean()-X, tBodyGyro-mean()-Y, tBodyGyro-mean()-Z	These three variables correspond to the averages of the respective 3-axial (X, Y, Z) body gyroscope measurements. Domain: float numbers.

tBodyGyro-std()-X, tBodyGyro-std()-Y, tBodyGyro-std()-Z	These three variables correspond to the standard deviation of the respective 3-axial (X, Y, Z) body gyroscope measurements. Domain: float numbers.
tBodyGyroJerk-mean()-X, tBodyGyroJerk-mean()-Y, tBodyGyroJerk-mean()-Z	These three variables correspond to the averages of the respective 3-axial (X, Y, Z) Jerk angular acceleration measurements. Domain: float numbers.
tBodyGyroJerk-std()-X, tBodyGyroJerk-std()-Y, tBodyGyroJerk-std()-Z	These three variables correspond to the standard deviation of the respective 3-axial (X, Y, Z) Jerk angular acceleration measurements. Domain: float numbers.
tBodyAccMag-mean(), tBodyAccMag-std()	These variables correspond to the average and standard deviation of the body acceleration magnitude measurements. Domain: float numbers.
tGravityAccMag-mean(), tGravityAccMag-std()	These variables correspond to the average and standard deviation of the gravity acceleration magnitude measurements. Domain: float numbers.
tBodyAccJerkMag-mean(), tBodyAccJerkMag-std()	These variables correspond to the average and standard deviation of the body acceleration magnitude measurements. Domain: float numbers.
tBodyGyroMag-mean(), tBodyGyroMag-std()	These variables correspond to the average and standard deviation of the gravity acceleration magnitude measurements. Domain: float numbers.
tBodyGyroJerkMag-mean(), tBodyGyroJerkMag-std()	These variables correspond to the average and standard deviation of the body gyroscope Jerk magnitude measurements. Domain: float numbers.
fBodyAcc-mean()-X, fBodyAcc-mean()-Y, fBodyAcc-mean()-Z	These three variables correspond to the frequency-domain signals of their time-domain equivalent measurements (i.e., tBodyAcc-mean()-X, -Y, and -Z in this case). Domain: float numbers.
fBodyAcc-std()-X, fBodyAcc-std()-Y, FbodyAcc-std()-Z	These variables correspond to the frequency-domain signals of their time-domain equivalent measurements. Domain: float numbers.
fBodyAccJerk-mean()-X, fBodyAccJerk-mean()-Y, fBodyAccJerk-mean()-Z	These variables correspond to the frequency-domain signals of their time-domain equivalent measurements. Domain: float numbers.
fBodyAccJerk-std()-X, fBodyAccJerk-std()-Y, fBodyAccJerk-std()-Z	These variables correspond to the frequency-domain signals of their time-domain equivalent measurements. Domain: float numbers.
fBodyGyro-mean()-X, fBodyGyro-mean()-Y, fBodyGyro-mean()-Z	These variables correspond to the frequency-domain signals of their time-domain equivalent measurements. Domain: float numbers.
fBodyGyro-std()-X, fBodyGyro-std()-Y, fBodyGyro-std()-Z	These variables correspond to the frequency-domain signals of their time-domain equivalent measurements. Domain: float numbers.
fBodyAccMag-mean(), fBodyAccMag-std()	These variables correspond to the frequency-domain signals of their time-domain equivalent measurements. Domain: float numbers.
fBodyBodyAccJerkMag-mean(), fBodyBodyAccJerkMag-std()	These variables correspond to the frequency-domain signals of their time-domain equivalent measurements. Domain: float numbers.

fBodyBodyGyroMag-mean(), fBodyBodyGyroMag-std()	These variables correspond to the frequency-domain signals of their time-domain equivalent measurements. Domain: float numbers.
fBodyBodyGyroJerkMag-mean(), fBodyBodyGyroJerkMag-std()	These variables correspond to the frequency-domain signals of their time-domain equivalent measurements. Domain: float numbers.

References

1. Davide Anguita, Alessandro Ghio, Luca Oneto, Xavier Parra and Jorge L. Reyes-Ortiz. A Public Domain Dataset for Human Activity Recognition Using Smartphones. 21th European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning, ESANN 2013. Bruges, Belgium 24-26 April 2013.