Data Dictionary – Tidy Data collected from the accelerometers from the Samsung Galaxy S smartphone

Data Source Information

The experiments have been carried out with a group of 30 volunteers within an age bracket of 19-48 years. Each person performed six activities (WALKING, WALKING\_UPSTAIRS, WALKING\_DOWNSTAIRS, SITTING, STANDING, LAYING) wearing a smartphone (Samsung Galaxy S II) on the waist. Using its embedded accelerometer and gyroscope, we captured 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz. The experiments have been video-recorded to label the data manually. The obtained dataset has been randomly partitioned into two sets, where 70% of the volunteers was selected for generating the training data and 30% the test data.

The sensor signals (accelerometer and gyroscope) were pre-processed by applying noise filters and then sampled in fixed-width sliding windows of 2.56 sec and 50% overlap (128 readings/window). The sensor acceleration signal, which has gravitational and body motion components, was separated using a Butterworth low-pass filter into body acceleration and gravity. The gravitational force is assumed to have only low frequency components, therefore a filter with 0.3 Hz cutoff frequency was used. From each window, a vector of features was obtained by calculating variables from the time and frequency domain.

subject

Subject Identifier

1 .. 30 .Unique identifier for each subject

activity\_label

Activity Label Text

1. WALKING

2. WALKING\_UPSTAIRS

3. WALKING\_DOWNSTAIRS

4. SITTING

5. STANDING

6. LAYING

tBodyAcc.mean...X

Mean Time of Body Accelerometer X by subject and activity in seconds

0.2216 .. 0.3015 .X mean time of body accelerometer

tBodyAcc.mean...Y

Mean Time of Body Accelerometer Y by subject and activity in seconds

-0.040514 .. -0.001308 .Y mean time of body accelerometer

tBodyAcc.mean...Z

Mean Time of Body Accelerometer Z by subject and activity in seconds

-0.15251 .. -0.07538 .Z mean time of body accelerometer

tGravityAcc.mean...X

Mean Time of Gravity Accelerometer X by subject and activity in seconds

-0.6800 .. 0.9745 .X mean time of gravity accelerometer

tGravityAcc.mean...Y

Mean Time of Gravity Accelerometer Y by subject and activity in seconds

-0.47989 .. 0.95659 .Y mean time of gravity accelerometer

tGravityAcc.mean...Z

Mean Time of Gravity Accelerometer Z by subject and activity in seconds

-0.49509 .. 0.95787 .Z mean time of gravity accelerometer

tBodyAccJerk.mean...X

Mean Time of Body Accelerometer Jerk X by subject and activity in seconds

0.04269 .. 0.13019 .X mean time of body accelerometer jerk

tBodyAccJerk.mean...Y

Mean Time of Body Accelerometer Jerk Y by subject and activity in seconds

-0.0386872 .. 0.0568186 .Y mean time of body accelerometer jerk

tBodyAccJerk.mean...Z

Mean Time of Body Accelerometer Jerk Z by subject and activity in seconds

-0.067458 .. 0.038053 .Z mean time of body accelerometer jerk

tBodyGyro.mean...X

Mean Time of Body Gyroscope X by subject and activity in seconds

-0.20578 .. 0.19270 .X mean time of body gyroscope

tBodyGyro.mean...Y

Mean Time of Body Gyroscope Y by subject and activity in seconds

-0.20421 .. 0.02747 .Y mean time of body gyroscope

tBodyGyro.mean...Z

Mean Time of Body Gyroscope Z by subject and activity in seconds

-0.07245 .. 0.17910 .Z mean time of body gyroscope

tBodyGyroJerk.mean...X

Mean Time of Body Gyroscope Jerk X by subject and activity in seconds

-0.15721 .. -0.02209 .X mean time of body gyroscope jerk

tBodyGyroJerk.mean...Y

Mean Time of Body Gyroscope Jerk Y by subject and activity in seconds

-0.07681 .. -0.01320 .Y mean time of body gyroscope jerk

tBodyGyroJerk.mean...Z

Mean Time of Body Gyroscope Jerk Z by subject and activity in seconds

-0.092500 .. -0.006941 .Z mean time of body gyroscope jerk

tBodyAccMag.mean..

Mean Time of Body Accelerometer Mag by subject and activity in seconds

-0.9865 .. 0.6446 .Mean time of body accelerometer mag

tGravityAccMag.mean..

Mean Time of Gravity Accelerometer Mag by subject and activity in seconds

-0.9865 .. 0.6446 .Mean time of gravity accelerometer mag

tBodyAccJerkMag.mean..

Mean Time of Body Accelerometer Jerk Mag by subject and activity in seconds

-0.9928 .. 0.4345 .Mean time of gravity accelerometer jerk mag

tBodyGyroMag.mean..

Mean Time of Body Gyroscope Mag by subject and activity in seconds

-0.9807 .. 0.4180 .Mean time of body gyroscope mag

tBodyGyroJerkMag.mean..

Mean Time of Body Gyroscope Jerk Mag by subject and activity in seconds

-0.99732 .. 0.08758 .Mean time of body gyroscope jerk mag

fBodyAcc.mean...X

Mean Frequency of Body Accelerometer X by subject and activity in hertz

-0.9952 .. 0.5370 .X mean frequency of body accelerometer

fBodyAcc.mean...Y

Mean Frequency of Body Accelerometer Y by subject and activity in hertz

-0.98903 .. 0.52419 .Y mean frequency of body accelerometer

fBodyAcc.mean...Z

Mean Frequency of Body Accelerometer Z by subject and activity in hertz

-0.9895 .. 0.2807 .Z mean frequency of body accelerometer

fBodyAccJerk.mean...X

Mean Frequency of Body Accelerometer Jerk X by subject and activity in hertz

-0.9946 .. 0.4743 .X mean frequency of body accelerometer jerk

fBodyAccJerk.mean...Y

Mean Frequency of Body Accelerometer Jerk Y by subject and activity in hertz

-0.9894 .. 0.2767 .Y mean frequency of body accelerometer jerk

fBodyAccJerk.mean...Z

Mean Frequency of Body Accelerometer Jerk Z by subject and activity in hertz

-0.9920 .. 0.1578 .Z mean frequency of body accelerometer jerk

fBodyGyro.mean...X

Mean Frequency of Body Gyroscope X by subject and activity in hertz

-0.9931 .. 0.4750 .X mean frequency of body gyroscope

fBodyGyro.mean...Y

Mean Frequency of Body Gyroscope Y by subject and activity in hertz

-0.9940 .. 0.3288 .Y mean frequency of body gyroscope

fBodyGyro.mean...Z

Mean Frequency of Body Gyroscope Z by subject and activity in hertz

-0.9860 .. 0.4924 .Z mean frequency of body gyroscope

fBodyAccMag.mean..

Mean Frequency of Body Accelerometer Mag by subject and activity in hertz

-0.9868 .. 0.5866 .Mean frequency of body accelerometer mag

fBodyBodyAccJerkMag.mean..

Mean Frequency of Body Accelerometer Mag by subject and activity in hertz

-0.9940 .. 0.5384 .Mean frequency of body accelerometer mag

fBodyBodyGyroMag.mean..

Mean Frequency of Body Gyroscope Mag by subject and activity in hertz

-0.9865 .. 0.2040 .Mean frequency of body gyroscope mag

fBodyBodyGyroJerkMag.mean..

Mean Frequency of Body Gyroscope Jerk Mag by subject and activity in v hertz

-0.9976 .. 0.1466 .Mean frequency of body gyroscope jerk mag

tBodyAcc.std...X

Mean Time of Standard Deviation Body Accelerometer X by subject and activity in seconds

-0.9961 .. 0.6269 .X mean time of standard deviation of body accelerometer

tBodyAcc.std...Y

Mean Time of Standard Deviation Body Accelerometer Y by subject and activity in seconds

-0.99024 .. 0.61694 .Y mean time of standard deviation of body accelerometer

tBodyAcc.std...Z

Mean Time of Standard Deviation Body Accelerometer Z by subject and activity in seconds

-0.9877 .. 0.6090 .Z mean time of standard deviation of body accelerometer

tGravityAcc.std...X

Mean Time of Standard Deviation Gravity Accelerometer X by subject and activity in seconds

-0.9968 .. -0.8296 .X mean time of standard deviation of gravity accelerometer

tGravityAcc.std...Y

Mean Time of Standard Deviation Gravity Accelerometer Y by subject and activity in seconds

-0.9942 .. -0.6436 .Y mean time of standard deviation of gravity accelerometer

tGravityAcc.std...Z

Mean Time of Standard Deviation Gravity Accelerometer Z by subject and activity in seconds

-0.9910 .. -0.6102 .Z mean time of standard deviation of gravity accelerometer

tBodyAccJerk.std...X

Mean Time of Standard Deviation Gravity Accelerometer Jerk X by subject and activity in seconds

-0.9946 .. 0.5443 .X mean time of standard deviation of gravity accelerometer jerk

tBodyAccJerk.std...Y

Mean Time of Standard Deviation Gravity Accelerometer Jerk Y by subject and activity in seconds

-0.9895 .. 0.3553 .Y mean time of standard deviation of gravity accelerometer jerk

tBodyAccJerk.std...Z

Mean Time of Standard Deviation Gravity Accelerometer Jerk XZby subject and activity in seconds

-0.99329 .. 0.03102 .Z mean time of standard deviation of gravity accelerometer jerk

tBodyGyro.std...X

Mean Time of Standard Deviation Body Gyroscope X by subject and activity in seconds

-0.9943 .. 0.2677 .X mean time of standard deviation of body gyroscope

tBodyGyro.std...Y

Mean Time of Standard Deviation Body Gyroscope Y by subject and activity in seconds

-0.9942 .. 0.4765 .Y mean time of standard deviation of body gyroscope

tBodyGyro.std...Z

Mean Time of Standard Deviation Body Gyroscope Z by subject and activity in seconds

-0.9855 .. 0.5649 .Z mean time of standard deviation of body gyroscope

tBodyGyroJerk.std...X

Mean Time of Standard Deviation Body Gyroscope Jerk X by subject and activity in seconds

-0.9965 .. 0.1791 .X mean time of standard deviation of body gyroscope jerk

tBodyGyroJerk.std...Y

Mean Time of Standard Deviation Body Gyroscope Jerk Y by subject and activity in seconds

-0.9971 .. 0.2959 .Y mean time of standard deviation of body gyroscope jerk

tBodyGyroJerk.std...Z

Mean Time of Standard Deviation Body Gyroscope Jerk Z by subject and activity in seconds

-0.9954 .. 0.1932 .Z mean time of standard deviation of body gyroscope jerk

tBodyAccMag.std..

Mean Time of Standard Deviation Body Accelerometer by subject and activity in seconds

-0.9865 .. 0.4284 .Mean time of standard deviation of body accelerometer mag

tGravityAccMag.std..

Mean Time of Standard Deviation Gravity Accelerometer by subject and activity in seconds

-0.9865 .. 0.4284 .Mean time of standard deviation of gravity accelerometer mag

tBodyAccJerkMag.std..

Mean Time of Standard Deviation Body Accelerometer Jerk Mag by subject and activity in seconds

-0.9946 .. 0.4506 .Mean time of standard deviation of body accelerometer jerk mag

tBodyGyroMag.std..

Mean Time of Standard Deviation Body Gyroscope by subject and activity in seconds

-0.9814 .. 0.3000 .Mean time of standard deviation of body gyroscope mag

tBodyGyroJerkMag.std..

Mean Time of Standard Deviation Gravity Gyroscope by subject and activity in seconds

-0.9977 .. 0.2502 .Mean time of standard deviation of gravity gyroscope mag

fBodyAcc.std...X

Mean Frequency of Standard Deviation Body Accelerometer X by subject and activity in hertz

-0.9966 .. 0.6585 .X mean frequency of standard deviation of body accelerometer

fBodyAcc.std...Y

Mean Frequency of Standard Deviation Body Accelerometer Y by subject and activity in hertz

-0.99068 .. 0.56019 .Y mean frequency of standard deviation of body accelerometer

fBodyAcc.std...Z

Mean Frequency of Standard Deviation Body Accelerometer Z by subject and activity in hertz

-0.9872 .. 0.6871 .Z mean frequency of standard deviation of body accelerometer

fBodyAccJerk.std...X

Mean Frequency of Standard Deviation Body Accelerometer Jerk X by subject and activity in hertz

-0.9951 .. 0.4768 .X mean frequency of standard deviation of body accelerometer jerk

fBodyAccJerk.std...Y

Mean Frequency of Standard Deviation Body Accelerometer Jerk Y by subject and activity in hertz

-0.9905 .. 0.3498 .Y mean frequency of standard deviation of body accelerometer jerk

fBodyAccJerk.std...Z

Mean Frequency of Standard Deviation Body Accelerometer Jerk Z by subject and activity in hertz

-0.993108 .. -0.006236 .Z mean frequency of standard deviation of body accelerometer jerk

fBodyGyro.std...X

Mean Frequency of Standard Deviation Body Gyroscope X by subject and activity in hertz

-0.9947 .. 0.1966 .X mean frequency of standard deviation of body gyroscope

fBodyGyro.std...Y

Mean Frequency of Standard Deviation Body Gyroscope Y by subject and activity in hertz

-0.9944 .. 0.6462 .Y mean frequency of standard deviation of body gyroscope

fBodyGyro.std...Z

Mean Frequency of Standard Deviation Body Gyroscope Z by subject and activity in hertz

-0.9867 .. 0.5225 .Z mean frequency of standard deviation of body gyroscope

fBodyAccMag.std..

Mean Frequency of Standard Deviation Body Accelerometer Mag by subject and activity in hertz

-0.9876 .. 0.1787 .Mean frequency of standard deviation of body accelerometer mag

fBodyBodyAccJerkMag.std..

Mean Frequency of Standard Deviation Body Accelerometer Jerk Mag by subject and activity in hertz

-0.9944 .. 0.3163 .Mean frequency of standard deviation of body accelerometer jerk mag

fBodyBodyGyroMag.std..

Mean Frequency of Standard Deviation Body Gyroscope Mag by subject and activity in hertz

-0.9815 .. 0.2367 .Mean frequency of standard deviation of body gyroscope mag

fBodyBodyGyroJerkMag.std..

Mean Frequency of Standard Deviation Body Gyroscope Mag by subject and activity in hertz

-0.9976 .. 0.2878 .Mean frequency of standard deviation of body gyroscope mag