Code Book - Samsung Galaxy S Smartphone Data

Overview of Data:

Thirty volunteers, aged 19-48, performed six activities while wearing a Samsung Galaxy S II smartphone. The smartphone's accelerometer and gyroscope were used to capture a series of measurements such as linear acceleration and angular velocity. The activities performed by the volunteers included walking, walking upstairs, walking downstairs, sitting, standing and laying.

From this large data set, averages were computed for each measurement. Each record in the dataset captures the average of one of the measurements for one volunteer for one activity. Each measurement identified as a "Number" below has been normalized to a value between -1 and 1.

Details:

subjectID (Integer)

Number from 1 to 30 indicating which volunteer performed the activity being measured.

activity (Factor)

Walking
Walking Upstairs
Walking Downstairs
Sitting
Standing
Laying

timeBodyAcceleration-mean()-Xaxis (Number)
timeBodyAcceleration-mean()-Yaxis (Number)
timeBodyAcceleration-mean()-Zaxis (Number)

The average body acceleration for one volunteer for one activity measured along each of the three axes.

timeBodyAcceleration-std()-Xaxis (Number)
timeBodyAcceleration-std()-Yaxis (Number)
timeBodyAcceleration-std()-Zaxis (Number)

The average standard deviation of body acceleration along each of the three axes for one volunteer for one activity.

timeGravityAcceleration-mean()-Xaxis (Number)
timeGravityAcceleration-mean()-Yaxis (Number)
timeGravityAcceleration-mean()-Zaxis (Number)

The average acceleration due to gravity (as opposed to body) for one activity for one volunteer measured along each of the three axes.

timeGravityAcceleration-std()-Xaxis (Number)

timeGravityAcceleration-std()-Yaxis (Number)
timeGravityAcceleration-std()-Zaxis (Number)

The average standard deviation of acceleration due to gravity (as opposed to body) along each of the three axes for one volunteer for one activity.

timeBodyAccelerationJerk-mean()-Xaxis (Number)
timeBodyAccelerationJerk-mean()-Yaxis (Number)
timeBodyAccelerationJerk-mean()-Zaxis (Number)

The average jerk signal from the linear body acceleration for one activity for one volunteer measured along each of the three axes.

timeBodyAccelerationJerk-std()-Xaxis (Number)
timeBodyAccelerationJerk-std()-Yaxis (Number)
timeBodyAccelerationJerk-std()-Zaxis (Number)

The average standard deviation of the jerk signal derived from the linear body acceleration measurement for one volunteer for one activity for each of the three axes.

timeBodyGyroscope-mean()-Xaxis (Number)
timeBodyGyroscope-mean()-Yaxis (Number)
timeBodyGyroscope-mean()-Zaxis (Number)

The average angular velocity measured by the gyroscope for one volunteer for one activity for each of the three axes.

timeBodyGyroscope-std()-Xaxis (Number)
timeBodyGyroscope-std()-Yaxis (Number)
timeBodyGyroscope-std()-Zaxis (Number)

The average standard deviation of the angular velocity measured by the gyroscope for one volunteer for one activity for each of the three axes.

timeBodyGyroscopeJerk-mean()-Xaxis (Number)
timeBodyGyroscopeJerk-mean()-Yaxis (Number)
timeBodyGyroscopeJerk-mean()-Zaxis (Number)

The average gyroscope jerk signal for one volunteer for one activity for each of the three axes.

timeBodyGyroscopeJerk-std()-Xaxis (Number)
timeBodyGyroscopeJerk-std()-Yaxis (Number)
timeBodyGyroscopeJerk-std()-Zaxis (Number)

The average standard deviation of the gyroscope jerk signal for one volunteer for one activity for each of the three axes.

timeBodyAccelerationMag-mean() (Number)

The average magnitude of the three-dimensional body acceleration signal for one volunteer for one activity.

timeBodyAccelerationMag-std() (Number)

The average standard deviation of the three-dimensional body acceleration signal for one volunteer for one activity.

timeGravityAccelerationMag-mean()(Number)

The average magnitude of the three-dimensional gravity acceleration signal for one volunteer for one activity.

timeGravityAccelerationMag-std()(Number)

The average standard deviation of the magnitude of the three-dimensional gravity acceleration signal for one volunteer for one activity.

timeBodyAccelerationJerkMag-mean()(Number)

The average magnitude of the three-dimensional body acceleration jerk signal for one volunteer for one activity.

timeBodyAccelerationJerkMag-std()(Number)

The average standard deviation of the magnitude of the three-dimensional body acceleration jerk signal for one volunteer for one activity.

timeBodyGyroscopeMag-mean()(Number)

The average magnitude of the three-dimensional body angular velocity for one volunteer for one activity.

timeBodyGyroscopeMag-std()(Number)

The average standard deviation of the magnitude of the three-dimensional body angular velocity for one volunteer for one activity.

timeBodyGyroscopeJerkMag-mean()(Number)

The average magnitude of the three-dimensional body angular velocity jerk signal for one volunteer for one activity.

timeBodyGyroscopeJerkMag-std()(Number)

The average standard deviation of the magnitude of the three-dimensional body angular velocity jerk signal for one volunteer for one activity.

freqBodyAcceleration-mean()-Xaxis (Number)
freqBodyAcceleration-mean()-Yaxis (Number)
freqBodyAcceleration-mean()-Zaxis (Number)

The average frequency domain signal for body acceleration for one volunteer for one activity for each of three axes.

freqBodyAcceleration-std()-Xaxis (Number)
freqBodyAcceleration-std()-Yaxis (Number)
freqBodyAcceleration-std()-Zaxis (Number)

The average standard deviation of the frequency domain signal for body acceleration for one volunteer for one activity for each of three axes.

freqBodyAccelerationJerk-mean()-Xaxis (Number)
freqBodyAccelerationJerk-mean()-Yaxis (Number)
freqBodyAccelerationJerk-mean()-Zaxis (Number)

The average frequency domain jerk signal for body acceleration for one volunteer for one activity for each of three axes.

freqBodyAccelerationJerk-std()-Xaxis (Number)
freqBodyAccelerationJerk-std()-Yaxis (Number)
freqBodyAccelerationJerk-std()-Zaxis (Number)

The average standard deviation of the frequency domain jerk signal for body acceleration for one volunteer for one activity for each of three axes.

freqBodyGyroscope-mean()-Xaxis (Number)
freqBodyGyroscope-mean()-Yaxis (Number)
freqBodyGyroscope-mean()-Zaxis (Number)

The average frequency domain signal for angular velocity for one volunteer for one activity for each of three axes.

freqBodyGyroscope-std()-Xaxis (Number)
freqBodyGyroscope-std()-Yaxis (Number)
freqBodyGyroscope-std()-Zaxis (Number)

The average standard deviation of the frequency domain signal for angular velocity for one volunteer for one activity for each of three axes.

freqBodyAccelerationMag-mean()(Number)

The average magnitude of the three-dimensional body acceleration frequency signal for one volunteer for one activity.

freqBodyAccelerationMag-std() (Number)

The average standard deviation of the three-dimensional body acceleration frequency signal for one volunteer for one activity.

freqBodyAccelerationJerkMag-mean()(Number)

The average magnitude of the three-dimensional body acceleration frequency jerk signal for one volunteer for one activity.

freqBodyAccelerationJerkMag-std()(Number)
The average standard deviation of the magnitude of the three-dimensional body acceleration frequency jerk signal for one volunteer for one activity.

freqBodyGyroscopeMag-mean()(Number)

The average magnitude of the three-dimensional body angular velocity frequency for one volunteer for one activity.

freqBodyGyroscopeMag-std()(Number)

The average standard deviation of the magnitude of the three-dimensional body angular velocity frequency for one volunteer for one activity.

freqBodyGyroscopeJerkMag-mean()(Number)

The average magnitude of the three-dimensional body angular velocity frequency jerk signal for one volunteer for one activity.

freqBodyGyroscopeJerkMag-std()(Number)

The average standard deviation of the magnitude of the three-dimensional body angular velocity frequency jerk signal for one volunteer for one activity.