

Code book for “tidy_set”

SubjectID

Identifies the subject who performed the activity for each window sample. Its range is from 1 to 30.

Activity

Activities that a subject had performed. The possible values are:

WALKING
WALKING_UPSTAIRS
WALKING_DOWNSTAIRS
SITTING
STANDING
LAYING

The features selected for this database come from the accelerometer and gyroscope 3-axial raw signals tAcc-XYZ and tGyro-XYZ. These time domain signals (prefix 't' to denote time) were captured at a constant rate of 50 Hz. Then they were filtered using a median filter and a 3rd order low pass Butterworth filter with a corner frequency of 20 Hz to remove noise. Similarly, the acceleration signal was then separated into body and gravity acceleration signals (tBodyAcc-XYZ and tGravityAcc-XYZ) using another low pass Butterworth filter with a corner frequency of 0.3 Hz.

Subsequently, the body linear acceleration and angular velocity were derived in time to obtain Jerk signals (tBodyAccJerk-XYZ and tBodyGyroJerk-XYZ). Also the magnitude of these three-dimensional signals were calculated using the Euclidean norm (tBodyAccMag, tGravityAccMag, tBodyAccJerkMag, tBodyGyroMag, tBodyGyroJerkMag).

Finally a Fast Fourier Transform (FFT) was applied to some of these signals producing fBodyAcc-XYZ, fBodyAccJerk-XYZ, fBodyGyro-XYZ, fBodyAccJerkMag, fBodyGyroMag, fBodyGyroJerkMag. (Note the 'f' to indicate frequency domain signals).

These signals were used to estimate variables of the feature vector for each pattern:

'-XYZ' is used to denote 3-axial signals in the X, Y and Z directions.

AVG-tBodyAcc-mean()-X
AVG-tBodyAcc-mean()-Y
AVG-tBodyAcc-mean()-Z
AVG-tBodyAcc-std()-X
AVG-tBodyAcc-std()-Y
AVG-tBodyAcc-std()-Z

AVG-tGravityAcc-mean()-X
AVG-tGravityAcc-mean()-Y
AVG-tGravityAcc-mean()-Z

AVG-tGravityAcc-std()-X
AVG-tGravityAcc-std()-Y
AVG-tGravityAcc-std()-Z

AVG-tBodyAccJerk-mean()-X
AVG-tBodyAccJerk-mean()-Y
AVG-tBodyAccJerk-mean()-Z

AVG-tBodyAccJerk-std()-X
AVG-tBodyAccJerk-std()-Y
AVG-tBodyAccJerk-std()-Z

AVG-tBodyGyro-mean()-X
AVG-tBodyGyro-mean()-Y
AVG-tBodyGyro-mean()-Z

AVG-tBodyGyro-std()-X
AVG-tBodyGyro-std()-Y
AVG-tBodyGyro-std()-Z

AVG-tBodyGyroJerk-mean()-X
AVG-tBodyGyroJerk-mean()-Y
AVG-tBodyGyroJerk-mean()-Z

AVG-tBodyGyroJerk-std()-X
AVG-tBodyGyroJerk-std()-Y
AVG-tBodyGyroJerk-std()-Z

AVG-tBodyAccMag-mean()
AVG-tBodyAccMag-std()

AVG-tGravityAccMag-mean()
AVG-tGravityAccMag-std()

AVG-tBodyAccJerkMag-mean()
AVG-tBodyAccJerkMag-std()

AVG-tBodyGyroMag-mean()
AVG-tBodyGyroMag-std()

AVG-tBodyGyroJerkMag-mean()
AVG-tBodyGyroJerkMag-std()

AVG-fBodyAcc-mean()-X
AVG-fBodyAcc-mean()-Y
AVG-fBodyAcc-mean()-Z

AVG-fBodyAcc-std()-X
AVG-fBodyAcc-std()-Y
AVG-fBodyAcc-std()-Z

AVG-fBodyAccJerk-mean()-X
AVG-fBodyAccJerk-mean()-Y
AVG-fBodyAccJerk-mean()-Z

AVG-fBodyAccJerk-std()-X
AVG-fBodyAccJerk-std()-Y
AVG-fBodyAccJerk-std()-Z

AVG-fBodyGyro-mean()-X
AVG-fBodyGyro-mean()-Y
AVG-fBodyGyro-mean()-Z

AVG-fBodyGyro-std()-X
AVG-fBodyGyro-std()-Y
AVG-fBodyGyro-std()-Z

AVG-fBodyAccMag-mean()
AVG-fBodyAccMag-std()

AVG-fBodyAccJerkMag-mean()
AVG-fBodyAccJerkMag-std()

AVG-fBodyGyroMag-mean()
AVG-fBodyGyroMag-std()

AVG-fBodyGyroJerkMag-mean()
AVG-fBodyGyroJerkMag-std()

AVG-gravityMean

AVG-tBodyAccMean

AVG-tBodyAccJerkMean

AVG-tBodyGyroMean

AVG-tBodyGyroJerkMean