

DATA DICTIONARY - tidydataset2

Dataset description from features_info file

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.

tBodyAcc-XYZ

tGravityAcc-XYZ

tBodyAccJerk-XYZ

tBodyGyro-XYZ

tBodyGyroJerk-XYZ

tBodyAccMag

tGravityAccMag

tBodyAccJerkMag

tBodyGyroMag

tBodyGyroJerkMag

fBodyAcc-XYZ

fBodyAccJerk-XYZ

fBodyGyro-XYZ

fBodyAccMag

fBodyAccJerkMag

fBodyGyroMag

fBodyGyroJerkMag

The set of variables that were estimated from these signals are:

mean(): Mean value

std(): Standard deviation

Variabels description:

"Subject Number" Indicates the subject number from 1 to 30 who participated in
the experiment

"Activity Desc" Describes the activity performed by the subject

STANDING

WALKING

WALKING_UPSTAIRS

WALKING_DOWNSTAIRS

SITTING

LAYING

"Variable"" tBodyAcc-mean()-X: Body acceleration mean on X axis

tBodyAcc-mean()-Y: Body acceleration mean on Y axis

tBodyAcc-mean()-Z: Body acceleration mean on Z axis

tBodyAcc-std()-X: Body acceleration standard deviation on X axis

tBodyAcc-std()-Y: Body acceleration standard deviation on Y axis

tBodyAcc-std()-Z: Body acceleration standard deviation on Z axis

tGravityAcc-mean()-X: Gravity acceleration mean on X axis

tGravityAcc-mean()-Y: Gravity acceleration mean on Y axis

tGravityAcc-mean()-Z: Gravity acceleration mean on Z axis

tGravityAcc-std()-X: Gravity acceleration standard deviation on X axis

tGravityAcc-std()-Y: Gravity acceleration standard deviation on Y axis

tGravityAcc-std()-Z: Gravity acceleration standard deviation on Z axis

tBodyAccJerk-mean()-X: Body linear acceleration jerk signal mean on X axis

tBodyAccJerk-mean()-Y: Body linear acceleration jerk signal mean on Y axis

tBodyAccJerk-mean()-Z: Body linear acceleration jerk signal mean on Z axis

tBodyAccJerk-std()-X: Body linear acceleration jerk signal standard deviation on X axis

tBodyAccJerk-std()-Y: Body linear acceleration jerk signal standard deviation on Y axis

tBodyAccJerk-std()-Z: Body linear acceleration jerk signal standard deviation on Z axis

tBodyGyro-mean()-X: Body gravity signal mean on X axis

tBodyGyro-mean()-Y: Body gravity signal mean on Y axis

tBodyGyro-mean()-Z: Body gravity signal mean on Z axis

tBodyGyro-std()-X: Body gravity signal standard deviation on X axis

tBodyGyro-std()-Y: Body gravity signal standard deviation on Y axis

tBodyGyro-std()-Z: Body gravity signal standard deviation on Z axis

tBodyGyroJerk-mean()-X: Body angular velocity jerk signal mean on X axis

tBodyGyroJerk-mean()-Y: Body angular velocity jerk signal mean on Y axis

tBodyGyroJerk-mean()-Z: Body angular velocity jerk signal mean on Z axis

tBodyGyroJerk-std()-X: Body angular velocity jerk signal standard deviation on X axis

tBodyGyroJerk-std()-Y: Body angular velocity jerk signal standard deviation on X axis

tBodyGyroJerk-std()-Z: Body angular velocity jerk signal standard deviation on X axis

tBodyAccMag-mean(): Body acceleration magnitude mean

tBodyAccMag-std(): Body acceleration magnitude standard deviation

tGravityAccMag-mean(): Gravity acceleration magnitude mean

tGravityAccMag-std(): Body linear acceleration magnitude standard deviation

tBodyAccJerkMag-mean(): Body linear acceleration jerk magnitude mean

tBodyAccJerkMag-std(): Body linear acceleration jerk magnitude standard deviation

tBodyGyroMag-mean(): Body gravity magnitude mean

tBodyGyroMag-std(): Body gravity magnitude standard deviation

tBodyGyroJerkMag-mean(): Body angular velocity jerk magnitude mean

tBodyGyroJerkMag-std(): Body angular velocity jerk magnitude standard deviation

fBodyAcc-mean()-X: Body acceleration mean on X axis by Fast Fourier Transform

fBodyAcc-mean()-Y: Body acceleration mean on Y axis by Fast Fourier Transform

fBodyAcc-mean()-Z: Body acceleration mean on Z axis by Fast Fourier Transform

fBodyAcc-std()-X: Body acceleration standard deviation on X axis by Fast Fourier Transform

fBodyAcc-std()-Y: Body acceleration standard deviation on Y axis by Fast Fourier Transform

fBodyAcc-std()-Z: Body acceleration standard deviation on Z axis by Fast Fourier Transform

fBodyAccJerk-mean()-X: Body acceleration jerk mean on X axis by Fast Fourier Transform

fBodyAccJerk-mean()-Y: Body acceleration jerk mean on Y axis by Fast Fourier Transform

fBodyAccJerk-mean()-Z: Body acceleration jerk mean on Z axis by Fast Fourier Transform

fBodyAccJerk-std()-X: Body acceleration jerk standard deviation on X axis by Fast Fourier Transform

fBodyAccJerk-std()-Y: Body acceleration jerk standard deviation on Y axis by Fast Fourier Transform

fBodyAccJerk-std()-Z: Body acceleration jerk standard deviation on Z axis by Fast Fourier Transform

fBodyGyro-mean()-X: Body angular velocity mean on X axis by Fast Fourier Transform

fBodyGyro-mean()-Y: Body angular velocity mean on Y axis by Fast Fourier Transform

fBodyGyro-mean()-Z: Body angular velocity mean on Z axis by Fast Fourier Transform

fBodyGyro-std()-X: Body angular velocity standard deviation on X axis by Fast Fourier Transform

fBodyGyro-std()-Y: Body angular velocity standard deviation on Y axis by Fast Fourier Transform

fBodyGyro-std()-Z: Body angular velocity standard deviation on Z axis by Fast Fourier Transform

fBodyAccMag-mean(): Body acceleration magnitude mean by Fast Fourier Transform

fBodyAccMag-std(): Body acceleration magnitude standard deviation by Fast Fourier Transform

fBodyBodyAccJerkMag-mean(): Body linear acceleration jerk magnitude mean by Fast Fourier Transform

fBodyBodyAccJerkMag-std(): Body linear acceleration jerk magnitude mean by Fast Fourier Transform

fBodyBodyGyroMag-mean(): Body angular velocity magnitude mean by Fast Fourier Transform

fBodyBodyGyroMag-std(): Body angular velocity magnitude standard deviation by Fast Fourier Transform

fBodyBodyGyroJerkMag-mean(): Body angular velocity jerk magnitude mean deviation by Fast Fourier Transform

fBodyBodyGyroJerkMag-std(): Body angular velocity jerk magnitude standard deviation by Fast Fourier Transform

"Result": Result (mean or std) of the "variable"