DataDictionary–UCIHumanActivityRecognitionUsingSmartphones

Subject 2

Indicates who is performing the activity [1-30]

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

Activity 20

Indicates the activity being performed by the subject

WALKING
WALKING_UPSTAIRS
WALKING_DOWNSTAIRS
SITTING
STANDING
LAYING

Mean-tBodyAcc-X	20 Mean value estimated for body component of linear acceleration measured n the X direction in time domain
Mean-tBodyAcc-Y	20 Mean value estimated for body component of linear acceleration measured n the Y direction in time domain
Mean-tBodyAcc-Z	20 Mean value estimated for body component of linear acceleration measured n the Z direction in time domain
Std-tBodyAcc-X	20 Standard deviation estimated for body component of linear acceleration measured in the X direction in time domain
Std-tBodyAcc-Y	20 Standard deviation estimated for body component of linear acceleration measured in the Y direction in time domain
Std-tBodyAcc-Z	20 Standard deviation estimated for body component of linear acceleration measured in the Z direction in time domain
Mean-tGravityAcc-X	20

		Mean value estimated for gravity component of linear acceleration measured n the X direction in time domain
Mean-tGravityAcc-Y	20	Mean value estimated for gravity component of linear acceleration measured n the Y direction in time domain
Mean-tGravityAcc-Z	20	Mean value estimated for gravity component of linear acceleration measured n the Z direction in time domain
Std-tGravityAcc-X	20	Standard Deviation value estimated for gravity component of linear acceleration measured n the X direction in time domain
Std-tGravityAcc-Y	20	Standard Deviation value estimated for gravity component of linear acceleration measured n the Y direction in time domain
Std-tGravityAcc-Z	20	Standard Deviation value estimated for gravity component of linear acceleration measured n the Z direction in time domain
Mean-tBodyAccJerk-X	20	Mean value estimated for body component of linear acceleration measured n theX direction in time domain
Mean-tBodyAccJerk-Y	20	Mean value estimated for body component of linear jerk measured n the Y direction in time domain
Mean-tBodyAccJerk-Z	20	Mean value estimated for body component of linear acceleration measured n the Z direction in time domain
Std-tBodyAccJerk-X	20	Standard deviation value estimated for body component of linear jerk measured n the X direction in time domain
Std-tBodyAccJerk-Y	20	Standard deviation value estimated for body component of linear jerk measured n the Y direction in time domain

Std-tBodyAccJerk-Z 20
Standard deviation estimated for body component of linear jerk measured n the Z direction in time domain

Mean-tBodyGyro-X 20
Mean value estimated for body component of angular acceleration measured n the X direction in time domain

Mean-tBodyGyro-Y 20
Mean value estimated for body component of angular acceleration measured n the Y direction in time domain

Mean-tBodyGyro-Z 20
Mean value estimated for body component of angular acceleration measured n the Z direction in time domain

Std-tBodyGyro-X 20
Standard Deviation value estimated for body component of angular acceleration measured n the X direction in time domain

Std-tBodyGyro-Y 20
Standard deviation value estimated for gravity component of angular acceleration measured n the Y direction in time domain

Std-tBodyGyro-Z 20
Standard deviation value estimated for body component of angular acceleration measured n the Z direction in time domain

Mean-tBodyGyroJerk-X 20
Mean value estimated for body component of angular jerk computed n the X direction in time domain

Mean-tBodyGyroJerk-Y 20
Mean value estimated for body component of angular jerk measured n the Y direction in time domain

Mean-tBodyGyroJerk-Z 20
Mean value estimated for body component of angular jerk computed n the Z direction in time domain

Std-tBodyGyroJerk-X 20

	Standard deviation value estimated for gravity component of angular jerk computed n the X direction in time domain
Std-tBodyGyroJerk-Y	20 Standard deviation value estimated for body component of angular jerk computed n the Y direction in time domain
Std-tBodyGyroJerk-Z	20 Standard deviation value estimated for body component of linear acceleration computed n the Z direction in time domain
Mean-tBodyAccMag	20 Mean value estimated for gravity component of linear acceleration magnitude in time domain
Std-tBodyAccMag	20 Standard deviation value estimated for body component of linear acceleration magnitude measured in time domain
Mean-tGravityAccMag	20 Mean value estimated for gravity component of linear acceleration magnitude computed in time domain
Std-tGravityAccMag	20 Standard deviation value estimated for gravity component of linear acceleration magnitude computed in time domain
Mean-tBodyAccJerkMag	20 Mean value estimated for body component of linear jerk magnitude computed in time domain
Std-tBodyAccJerkMag	20 Mean value estimated for body component of linear jerk magnitude computed in time domain
Mean-tBodyGyroMag	20 Mean value estimated for body component of angular jerk magnitude computed in time domain

Std-tBodyGyroMag 20

Standard deviation value estimated for body component of angular accelertion magnitude computed in time domain

Mean-tBodyGyroJerkMag 20
Mean value estimated for body component of angular jerk magnitude computed in time domain

Std-tBodyGyroJerkMag 20
Standard deviation estimated for body component of angular jerk magnitude computed in time domain

Mean-fBodyAcc-X 20
Mean value estimated for body component of angular jerk magnitude computed in frequency domain

Mean-fBodyAcc-Y 20
Mean value estimated for body component of angular jerk magnitude computed in frequency domain

Mean-fBodyAcc-Z 20
Mean value estimated for body component of angular jerk magnitude computed in frequency domain

Std-fBodyAcc-X 20
Mean value estimated for body component of angular jerk magnitude computed in frequency domain

Std-fBodyAcc-Y 20
Mean value estimated for body component of angular jerk magnitude computed in frequency domain

Std-fBodyAcc-Z 20
Standard deviation estimated for body component of angular jerk magnitude computed in frequency domain

Mean-fBodyAccJerk-X 20
Mean value estimated for body component of angular jerk magnitude computed in frequency domain

Mean-fBodyAccJerk-Y 20
Mean value estimated for body component of angular jerk magnitude computed in frequency domain

Mean-fBodyAccJerk-Z 20

		Mean value estimated for body component of angular jerk magnitude computed in frequency domain
Std-fBodyAccJerk-X	20	Mean value estimated for body component of angular jerk magnitude computed in frequency domain
Std-fBodyAccJerk-Y	20	Mean value estimated for body component of angular jerk magnitude computed in frequency domain
Std-fBodyAccJerk-Z	20	Mean value estimated for body component of angular jerk magnitude computed in frequency domain
Mean-fBodyGyro-X	20	Mean value estimated for body component of angular jerk magnitude computed in frequency domain
Mean-fBodyGyro-Y	20	Mean value estimated for body component of angular jerk magnitude computed in frequency domain
Mean-fBodyGyro-Z	20	Mean value estimated for body component of angular jerk magnitude computed in frequency domain
Std-fBodyGyro-X	20	Standard deviation estimated for body component of angular jerk magnitude computed in frequency domain
Std-fBodyGyro-Y	20	Standard deviation value estimated for body component of angular jerk magnitude computed in frequency domain
Std-fBodyGyro-Z	20	Standard deviation value estimated for body component of angular jerk magnitude computed in frequency domain
Mean-fBodyAccMag	20	Mean value estimated for body component of linear acceleration magnitude computed in frequency domain
Std-fBodyAccMag	20	

Standard deviation value estimated for body component of linear acceleration magnitude computed in frequency domain

Mean-fBodyBodyAccJerkMag 20
Mean value estimated for body component of linear jerk computed in frequency domain

Std-fBodyBodyAccJerkMag 20
Standard deviation value estimated for body component of linear jerk magnitude computed in frequency domain

Mean-fBodyBodyGyroMag 20
Mean value estimated for body component of angular jerk magnitude computed in frequency domain

Std-fBodyBodyGyroMag 20
Standard deviation value estimated for body component of angular jerk magnitude computed in frequency domain

Mean-fBodyBodyGyroJerkMag 20
Mean value estimated for body component of angular jerk magnitude computed in frequency domain

Std-fBodyBodyGyroJerkMag 20
Standard deviation value estimated for body component of angular jerk magnitude computed in frequency domain

Original Data Description

FeatureSelection

=================

Thefeaturesselectedforthisdatabasecomefromtheaccelerometerandgyroscope-axialrawsignalstAcc-XYZandtGyro-XYZ-Thesetimedomainsignals(prefix't'todenotetime)werecapturedataconstantrateofHz-

Thentheywerefilteredusingamedianfilterandardorderlowpass Butterworthfilterwith acornerfrequencyofHztoremovenoise- Similarly,theaccelerationsignalwasthenseparatedintobodyandgravityaccelerationsignals(tBodyAcc-XYZandtGravityAcc-XYZ)usinganotherlowpassButterworthfilterwithacornerfrequencyof-Hz-

Subsequently,thebodylinearaccelerationandangularvelocitywerederivedintimetoobtainJerksignals(tBodyAccJerk-XYZandtBodyGyroJerk-XYZ)- Alsothemagnitudeofthesethree-dimensionalsignalswerecalculatedusingtheEuclideannorm(tBodyAccMag,tGravityAccMag,tBodyAccJerkMag,tBodyGyroMag,tBodyGyroJerkMag)-

FinallyaFastFourierTransform(FFT)wasappliedtosomeofthesesignalsproducingfBodyAcc-XYZ,fBodyAccJerk-XYZ,fBodyGyro-XYZ,fBodyAccJerkMag,fBodyGyroMag,fBodyGyroJerkMag- (Notethe'f'toindicatefrequencydomainsignals)-

Thesesignalswereusedtoestimatevariablesofthefeaturevectorforeachpattern:

'-XYZ'isusedtodenote-axialsignalsintheX,YandZdirections-

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

Thesetofvariablesthatwereestimatedfromthesesignalsare:

mean():Meanvalue

std():Standarddeviation

Additionalvectorsobtainedbyaveragingthesignalsinasignalwindowsample-Theseareusedontheangle()variable: