*CODE BOOK

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.

subjectID

Unique identifier for each of the volunteers.

1..30

activityID

Unique identifier for the activity the subject was doing when the measurement was taken.

1 .WALKING
2 .WALKING_UPSTAIRS
3 .WALKING_DOWNSTAIRS
4 .SITTING
5 .STANDING
6 .LAYING

activityName

Name of the activity the activity the subject was doing when the measurement was taken.

WALKING
WALKING_UPSTAIRS
WALKING_DOWNSTAIRS
SITTING
STANDING
LAYING

time-BodyAccelerometer-mean-X
time-BodyAccelerometer-mean-Y
time-BodyAccelerometer-mean-Z

Mean value for the body linear acceleration for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-BodyAccelerometer-std-X
time-BodyAccelerometer-std-Y
time-BodyAccelerometer-std-Z

Standard deviation value for the body linear acceleration for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-Gravity-Accelerometer-mean-X
time-Gravity-Accelerometer-mean-Y
time-Gravity-Accelerometer-mean-Z

Mean value for the gravity linear acceleration for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-Gravity-Accelerometer-std-X
time-Gravity-Accelerometer-std-Y
time-Gravity-Accelerometer-std-Z

Standard deviation value for the gravity linear acceleration for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-BodyAccelerometerJerk-mean-X
time-BodyAccelerometerJerk-mean-Y
time-BodyAccelerometerJerk-mean-Z

Mean value for the body linear acceleration jerk for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-BodyAccelerometerJerk-std-X
time-BodyAccelerometerJerk-std-Y
time-BodyAccelerometerJerk-std-Z

Standard deviation value for the body linear acceleration jerk for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-BodyGyroscope-mean-X
time-BodyGyroscope-mean-Y
time-BodyGyroscope-mean-Z

Mean value for the body angular velocity for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-BodyGyroscope-std-X
time-BodyGyroscope-std-Y
time-BodyGyroscope-std-Z

Standard deviation value for the body angular velocity for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-BodyGyroscopeJerk-mean-X
time-BodyGyroscopeJerk-mean-Y
time-BodyGyroscopeJerk-mean-Z

Mean value for the body angular velocity jerk for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-BodyGyroscopeJerk-std-X
time-BodyGyroscopeJerk-std-Y
time-BodyGyroscopeJerk-std-Z

Standard deviation value for the body angular velocity jerk for the X, Y or Z axis in the time domain.

Numeric value. Possibly negative.

time-BodyAccelerometerMagnitude-mean

Mean value for the body linear acceleration magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

time-BodyAccelerometerMagnitude-std

Standard deviation value for the body linear acceleration magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

time-GravityAccelerometerMagnitude-mean

Mean value for the gravity linear acceleration magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

time-GravityAccelerometerMagnitude-std

Standard deviation value for the gravity linear acceleration magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

time-BodyAccelerometerJerkMagnitude-mean

Mean value for the body linear acceleration jerk magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

time-BodyAccelerometerJerkMagnitude-std

Standard deviation value for the body linear acceleration jerk magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

time-BodyGyroscopeMagnitude-mean

Mean value for the body angular velocity magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

time-BodyGyroscopeMagnitude-std

Standard deviation value for the body angular velocity magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

time-BodyGyroscopeJerkMagnitude-mean

Mean value for the body angular velocity jerk magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

time-BodyGyroscopeJerkMagnitude-std

Standard deviation value for the body angular velocity jerk magnitude using the euclidean norm in the time domain.

Numeric value. Possibly negative.

frequency-BodyAccelerometer-mean-X
frequency-BodyAccelerometer-mean-Y
frequency-BodyAccelerometer-mean-Z

Mean value for the body linear acceleration for the X, Y or Z axis in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyAccelerometer-std-X
frequency-BodyAccelerometer-std-Y
frequency-BodyAccelerometer-std-Z

Standard deviation value for the body linear acceleration for the X, Y or Z axis in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyAccelerometerJerk-mean-X
frequency-BodyAccelerometerJerk-mean-Y
frequency-BodyAccelerometerJerk-mean-Z

Mean value for the body linear acceleration jerk for the X, Y or Z axis in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyAccelerometerJerk-std-X
frequency-BodyAccelerometerJerk-std-Y
frequency-BodyAccelerometerJerk-std-Z

Standard deviation value for the body linear acceleration jerk for the X, Y or Z axis in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyGyroscope-mean-X
frequency-BodyGyroscope-mean-Y
frequency-BodyGyroscope-mean-Z

Mean value for the body angular velocity for the X, Y or Z axis in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyGyroscope-std-X
frequency-BodyGyroscope-std-Y
frequency-BodyGyroscope-std-Z

Standard deviation value for the body angular velocity for the X, Y or Z axis in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyGyroscopeJerk-mean-X
frequency-BodyGyroscopeJerk-mean-Y
frequency-BodyGyroscopeJerk-mean-Z

Mean value for the body angular velocity jerk for the X, Y or Z axis in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyGyroscopeJerk-std-X
frequency-BodyGyroscopeJerk-std-Y
frequency-BodyGyroscopeJerk-std-Z

Standard deviation value for the body angular velocity jerk for the X, Y or Z axis in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyAccelerometerMagnitude-mean

Mean value for the body linear acceleration magnitude using the euclidean norm in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyAccelerometerMagnitude-std

Standard deviation value for the body linear acceleration magnitude using the euclidean norm in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyAccelerometerJerkMagnitude-mean

Mean value for the body linear acceleration jerk magnitude using the euclidean norm in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyAccelerometerJerkMagnitude-std

Standard deviation value for the body linear acceleration jerk magnitude using the euclidean norm in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyGyroscopeMagnitude-mean

Mean value for the body angular velocity magnitude using the euclidean norm in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyGyroscopeMagnitude-std

Standard deviation value for the body angular velocity magnitude using the euclidean norm in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyGyroscopeJerkMagnitude-mean

Mean value for the body angular velocity jerk magnitude using the euclidean norm in the frequency domain.

Numeric value. Possibly negative.

frequency-BodyGyroscopeJerkMagnitude-std

Standard deviation value for the body angular velocity jerk magnitude using the euclidean norm in the frequency domain.

Numeric value. Possibly negative.