**55.Human Activity Recognition Using Smartphones**

1. 数据库网址

http://archive.ics.uci.edu/ml/datasets/Human+Activity+Recognition+Using+Smartphones

2. 数据库描述

【1.[数据集名称]数据集由[机构名或人名]采集；】The data used in our experiments were collected by Jorge L. Reyes-Ortiz, and Davide Anguita, from Smartlab - Non Linear Complex Systems Laboratory, DITEN - UniversitÃ degli Studi di Genova.【2.用于[什么实验目的]】We used to recognize the human activities.【3】The experiments have been carried out with a group of 30 volunteers within an age bracket of 19-48 years. Each person performed six activities (WALKING, WALKING\_UPSTAIRS, WALKING\_DOWNSTAIRS, SITTING, STANDING, LAYING) wearing a smartphone (Samsung Galaxy S II) on the waist. Using its embedded accelerometer and gyroscope, we captured 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz. The experiments have been video-recorded to label the data manually. The obtained dataset has been randomly partitioned into two sets, where 70% of the volunteers was selected for generating the training data and 30% the test data. The sensor signals (accelerometer and gyroscope) were pre-processed by applying noise filters and then sampled in fixed-width sliding windows of 2.56 sec and 50% overlap (128 readings/window). The sensor acceleration signal, which has gravitational and body motion components, was separated using a Butterworth low-pass filter into body acceleration and gravity. The gravitational force is assumed to have only low frequency components, therefore a filter with 0.3 Hz cutoff frequency was used. From each window, a vector of features was obtained by calculating variables from the time and frequency domain.【4】The database has 10299 samples, respectively belong to training with 9510 samples and testing with 789 samples. The categories can be described as shown in Table 1.

Table 1 Category Distribution of dataset [根据数据库绘制]

|  |  |  |  |
| --- | --- | --- | --- |
| Categories | optdigits.tra | optdigits.tes | Total Number of Samples |
| Walking | 254 | 109 | 363 |
| Upstairs | 221 | 95 | 316 |
| Downstairs | 278 | 119 | 397 |
| Standing | 308 | 132 | 440 |
| Sitting | 252 | 108 | 360 |
| Laying | 1231 | 142 | 1373 |
| Total number of samples in total | 9510 | 789 | 10299 |

3. 精简描述

The Data in our experiment were collected by Jorge L. Reyes-Ortiz, and Davide Anguita, from Smartlab - Non Linear Complex Systems Laboratory, DITEN - UniversitÃ degli Studi di Genova. The dataset includes have 10299 samples, which used to recognize the human activities. Through which, we divided the dataset into two part, training data set with 9510 samples and forecasting data set with 789 samples.