

Data description

The data.mat includes 6 variables

- data1_wrist: 1153096*3 double
- data1_chest: 1153096*3 double
- data1_labels: 1153096*1 double
- data2_wrist: 1035460*3 double
- data2_chest: 1035460*3 double
- data2_labels: 1035460*1 double

The _wrist and _chest variables consists of 3 acceleration signals from gym exercises and the _labels variables consists of the gym set labels collected using a GeneActiv 3D accelerometer at a frequency of 100 Hz. Two accelerometers were used simultaneously, one in the left wrist and another in chest (using a chest-strap like as in heart-rate monitors).

The actual exercises are introduced in table below. The basic exercises are numbered from 1 to 30 and the class of counter arm is increased by 50; counter arm of 6 is marked as 56, of 10 as 60 and of 26 as 76. Each of the exercises consists three sets of ten repetitions. The warming up and cooling down sequences are numbered from 96 to 98 to separate them from the basic exercises. Moreover, the data set constituted also data between every exercise set in which the subject moved around at the gym, changed weight, stretched or just stayed still. In this study, this data is called NULL-data and labeled with 99. Similar data sets were collected twice (data1 and data2).

When using the data set, please refer to article: Heli Koskimäki, Pekka Siirtola (2014) Recognizing Gym Exercises Using Acceleration Data from Wearable Sensors, IEEE Symposium on Computational Intelligence and Data Mining.

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Class	Name	Muscle group	Posture	One-arm, both or alternate	Equipment
1	Close-Grip Barbell Bench Press	Triceps	On back	Both	Barbell
2	Bar Skullcrusher	Triceps	On back	Both	Barbell
3	Triceps Pushdown	Triceps	Standing	Both	Cable rope
4	Bench Dip / Dip	Triceps	Weight on hands	Both	Own weight
5	Overhead Triceps Extension	Triceps	Standing	Both	Barbell Plate
6	Tricep Dumbbell Kickback	Triceps	Bent Over	One-arm	Dumbbell
7	Spider Curl	Biceps	Sitting	Both	E-Z Curl Bar
8	Dumbbell Alternate Bicep Curl	Biceps	Standing	Alternate	Dumbbell
9	Incline Hammer Curl	Biceps	Seated inclined	Both	Dumbbell
10	Concentration Curl	Biceps	Seated	One-arm	Dumbbell
11	Cable Curl	Biceps	Standing	Both	Cable Bar
12	Hammer Curl	Biceps	Standing	Alternate	Dumbbell
13	Upright Barbell Row	Shoulders	Standing	Both	Barbell
14	Side Lateral Raise	Shoulders	Standing	Both	Dumbbell
15	Front Dumbbell Raise	Shoulders	Standing	Alternate	Dumbbell
16	Seated Dumbbell Shoulder Press	Shoulders	Seated	Both	Dumbbell
17	Car Drivers	Shoulders	Standing	Both	Barbell Plate
18	Lying Rear Delt Raise	Shoulders	On stomach	Both	Dumbbell
19	Bench Press	Chest	On back	Both	Barbell
20	Incline Dumbbell Flyes	Chest	Seated inclined	Both	Dumbbell
21	Incline Dumbbell Press	Chest	Seated inclined	Both	Dumbbell
22	Dumbbell Flyes	Chest	On back	Both	Dumbbell
23	Pushups	Chest	On hands & knees	Both	Own weight
24	Leverage Chest Press	Chest	Seated	Both	Machine
25	Seated Cable Rows	Middle Back	Seated	Both	Cable
26	One-Arm Dumbbell Row	Middle Back	Bent Over	One-arm	Dumbbell
27	Wide-Grip Pulldown Behind The Neck	Lats	Sitting	Both	Cable
28	Bent Over Barbell Row	Middle Back	Bent Over	Both	Barbell
29	Reverse Grip Bent-Over Row	Middle Back	Bent Over	Both	Barbell
30	Wide-Grip Front Pulldown	Lats	Sitting	Both	Cable
56	Tricep Dumbbell Kickback	Triceps	Bent Over	Counter arm	Dumbbell
60	Concentration Curl	Biceps	Seated	Counter arm	Dumbbell
76	One-Arm Dumbbell Row	Middle Back	Bent Over	Counter arm	Dumbbell
96	Cross-trainer	Warm-up	Standing	Alternate	Cross-trainer
97	Rowing seated	Warm-up	Seated	Both	Row Machine
98	Walking	Warm-up	Standing	Alternate	Treadmill
99	NULL				