EMG SIGNALS CLASSIFICATION ALGORITHM

Raw Data

UCI Machine Learning Repository

Classify according to class

Python code

EMG DATA OF 36 PEOPLE

File1 : Data for day 1
File 2 : Data for Last Day

File Structure

Description of raw_data_***.file
Each file consist of 10 columns:
1) Time - time in ms;
2-9) Channel - eightEMG channels of MYO Thalmic bracelet;
10) Class –thelabel of gestures:
0 - unmarked data,
1 - hand at rest,
2 - hand clenched in a fist,
3 - wrist flexion,
4 – wrist extension,
5 – radial deviations,
6 - ulnar deviations,
7 - extended palm (the gesture was not performed by all subjects).

DataFor1   DataFor2

0.TXT - DATA OF CLASS 0
1.TXT - DATA OF CLASS 1
2.TXT - DATA OF CLASS 2
3.TXT - DATA OF CLASS 3
4.TXT - DATA OF CLASS 4
5.TXT - DATA OF CLASS 5
6.TXT - DATA OF CLASS 6

CONVER TO EXCEL

Python code

Principal Component Analysis (PCA)

Python code

Matlab Code

Feeding Data Into The Code

1008 - Graphs
1008 - Statistics

CODE

Prediction

36 - Subjects
• Channel 2-5
    ▪ Day1 and Day2
        • Plot For Class 0-6 and Statistics for Class 0-6
• Channel 6-9
    ○ [Data1,Data2..,Data36]
        ▪ Day1 and Day2
            • Plot For Class 0-6 and Statistics for Class 0-6
    ○

The predicted order of priorities for TestCase 27 is:

Class	Frequency	Priority
Class 0	0	0
Class 1	0	0
Class 2	0	0
Class 3	0	0
Class 4	0	0
Class 5	1	9
Class 6	1	9

The order of priority for this iteration is:
Class 5 > Class 6 >

The predicted order of priorities for TestCase 28 is:

Class	Frequency	Priority
Class 0	0	0
Class 1	0	0
Class 2	0	0
Class 3	1	9
Class 4	1	9
Class 5	0	0
Class 6	0	0

The order of priority for this iteration is:
Class 3 > Class 4 > Class 5 >

The final order of priorities is:

Class	Frequency	Priority
Class 0	0	0
Class 1	0	0
Class 2	16	1224
Class 3	18	1539
Class 4	7	252
Class 5	17	1377
Class 6	14	945

The class with the highest priority is: Class 3