

1. Experiment

I measure action of 5 patterns 5 times. Subject is 3 people. Average age is 23.33

Experimental actions are Bending, Bending back, Bending left side, Bending right side and jump. 5 actions are shown in Fig.1.



(a) Bending



(b) Bending back



(c) Bending left side



(d) Bending right side



(e) jump

Fig.1 Experimental actions

2. Data collected

I use wii balance board. Measurement time is 15 sec (0~5 sec : rest, 5~10 sec : moving, 10~15 sec : rest). real data is about 400, this data compressed to 100. This data finally size is $75 \times 100 \times 6 \times 1$ (movements, length, features, boxes). I use 1~50 movements training data and 51~75 movements test data. data class is 3 parson, 5 pattern, 5 times. Epoch is 100.

3. Results

The accuracy of training is shown in Fig.2. Next, loss of training is shown in Fig.3. Finally, confusion matrix is shown in Fig.4.

This cause, Accuracy of training score is 40%, loss of training score is 72.6%, Test accuracy score is 20%, Test loss score is 77.6%.

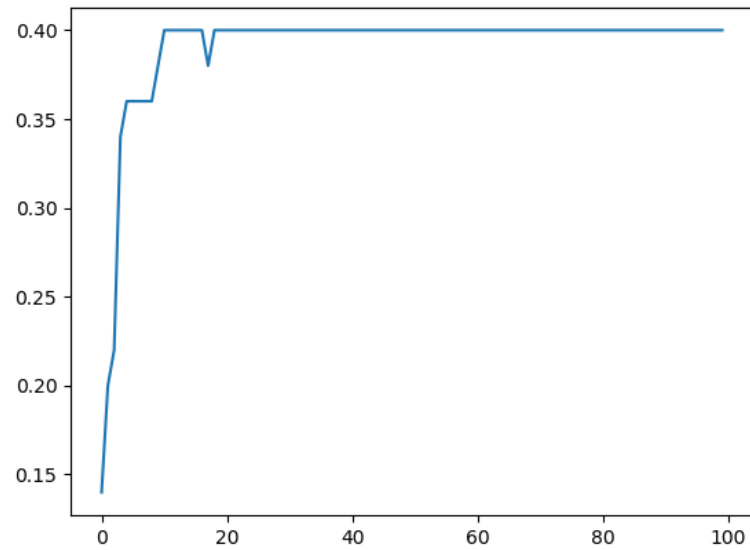


Fig.2 accuracy of training

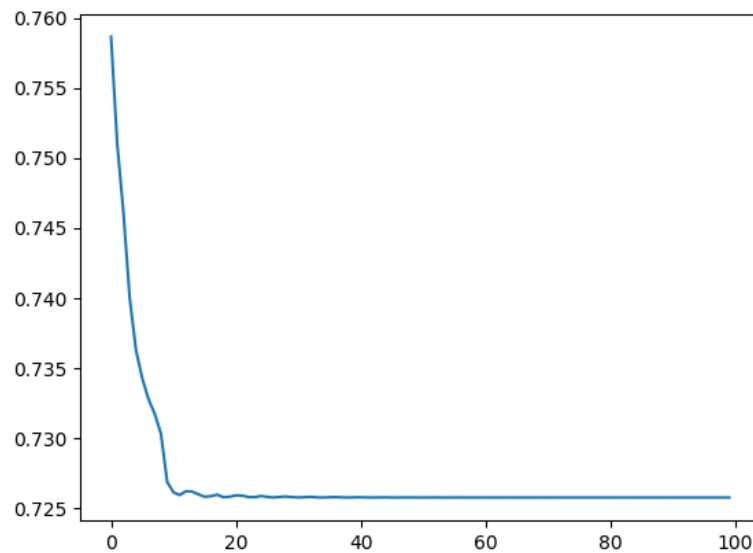


Fig.3 loss of training

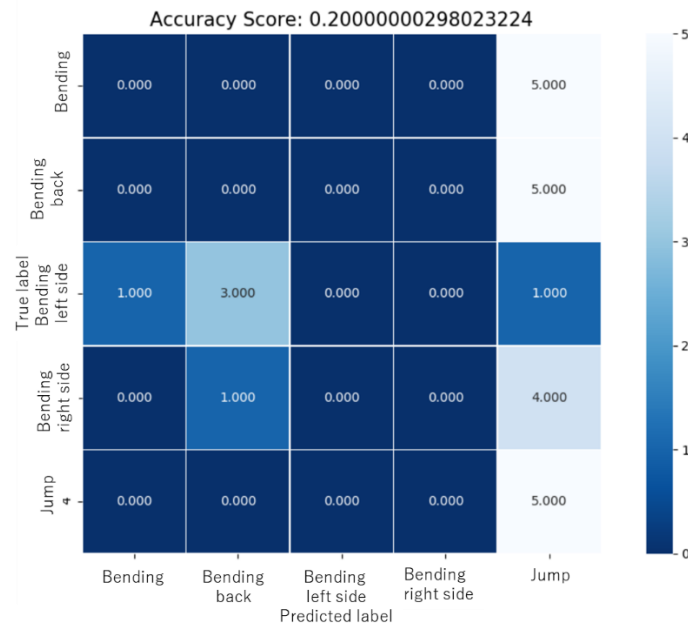


Fig.4 confusion matrix

4. Consideration

I think that 3 reasons for this result. First, less collect data because I collected 75 data. into training data is 50 and test data is 25. Second, similar motions because this data is keeping pose starts 5 sec and finish 5 sec. Keep time is longer than motion time so result mean 2/3 area is same, so I cut keep area. But, result don't change confusion matrix.

Similar motion reason is shown in Fig.5

Finally, I missed select range because I choose range 4 force sensor value and x, y CoP. CoP data maybe similar. So, I choose only 4 force sensor value. But, result don't change confusion matrix.

In conclusion, I think data was insufficient.

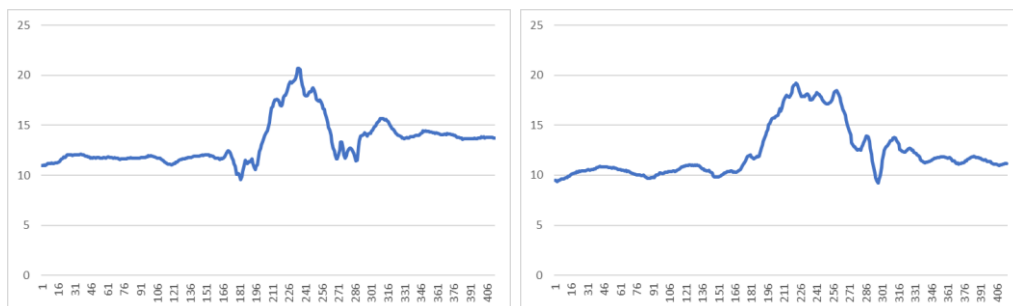


Fig.5 another motion and same sensor value