

Errata: Predicting Physical Activities from Accelerometer Readings in Spherical Coordinate System

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1 Experimental results

The results published in Table 2 of the manuscript are incorrect. We note that the results presented in the manuscript were part of the larger experimental study. To explain where things went wrong, we first present here the complete results of the study which additionally considers seven variants of features combinations. The combinations referred to as ‘setting 1’ to ‘setting 7’ are summarised in Table 1. Now, the current values in Table 2 of the manuscript were the ones that are highlighted in red, which are the averages of the accuracies from all seven settings. However, since we omitted features combination experiment from the manuscript, but fixed feature combination to setting 7, the values in Table 2 of the manuscript should instead be the ones that are highlighted in blue.

	Features
Setting 1	Means
Setting 2	SDs
Setting 3	Correlations
Setting 4	Means & SDs
Setting 5	Means & Correlations
Setting 6	SDs & Correlations
Setting 7	Means & SDs & Correlations

Table 1: Feature settings

1.1 Spherical Coordinates

classifier	5 seconds time frame							Mean
	Setting 1	Setting 2	Setting 3	Setting 4	Setting 5	Setting 6	Setting 7	
kNN (k=5)	72.00	78.80	57.20	90.80	79.20	81.60	90.80	78.63
Decision Tree	58.80	75.60	54.80	85.20	71.60	76.00	87.60	72.80
SVM (Linear)	57.60	65.20	55.60	87.20	75.60	76.00	91.60	72.69
SVM (Poly 2)	58.80	64.40	56.00	88.40	78.80	80.80	94.00	74.46
Naive Bayes	69.20	71.60	52.40	87.20	81.60	82.40	91.60	76.57
LDA	60.00	69.20	59.20	80.40	71.20	75.60	85.60	71.60
Mean	62.73	70.80	55.87	86.53	76.33	78.73	90.20	74.46

Table 2: Accuracies under 5 seconds time frame inspherical coordinates

classifier	10 seconds time frame							
	Setting 1	Setting 2	Setting 3	Setting 4	Setting 5	Setting 6	Setting 7	Mean
kNN (k=5)	84.40	84.40	66.00	99.20	88.00	93.20	98.00	87.60
Decision Tree	85.60	78.80	58.80	95.20	82.00	88.00	94.00	83.20
SVM (Linear)	65.20	81.20	66.40	98.00	85.20	91.20	99.20	83.77
SVM (Poly 2)	69.20	76.00	67.20	99.20	88.00	92.40	98.80	84.40
Naive Bayes	80.80	83.20	67.20	96.80	90.00	92.00	96.80	86.69
LDA	69.20	82.80	68.40	95.60	85.20	92.40	98.00	84.51
Mean	75.73	81.07	65.67	97.33	86.40	91.53	97.47	85.03

Table 3: Accuracies under 10 seconds time frame in spherical coordinates

classifier	15 seconds time frame							
	Setting 1	Setting 2	Setting 3	Setting 4	Setting 5	Setting 6	Setting 7	Mean
kNN (k=5)	86.80	85.60	72.80	98.80	93.20	95.60	99.20	90.29
Decision Tree	83.60	85.20	64.80	95.20	89.60	88.00	95.20	85.94
SVM (Linear)	70.80	86.40	75.20	98.80	91.60	95.20	99.20	88.17
SVM (Poly 2)	72.80	83.60	74.80	99.20	91.60	96.40	98.80	88.17
Naive Bayes	82.80	86.40	73.60	98.00	93.60	95.20	98.80	89.77
LDA	73.60	85.60	74.00	98.40	90.40	96.00	98.40	88.06
Mean	78.40	85.47	72.53	98.07	91.67	94.40	98.27	88.40

Table 4: Accuracies under 15 seconds time frame in spherical coordinates

classifier	20 seconds time frame							
	Setting 1	Setting 2	Setting 3	Setting 4	Setting 5	Setting 6	Setting 7	Mean
kNN (k=5)	85.20	85.60	80.80	99.60	96.00	96.40	100.00	91.94
Decision Tree	87.20	85.60	79.20	95.20	92.40	94.80	95.60	90.00
SVM (Linear)	69.60	88.00	76.80	100.00	92.80	98.00	100.00	89.31
SVM (Poly 2)	71.20	84.40	79.20	99.60	94.80	98.00	99.60	89.54
Naive Bayes	84.80	87.20	77.20	98.00	94.80	96.40	99.20	91.09
LDA	74.00	88.00	77.60	99.60	94.40	97.20	100.00	90.11
Mean	78.67	86.47	78.47	98.67	94.20	96.80	99.07	90.33

Table 5: Accuracies under 20 seconds time frame in spherical coordinates

1.2 Cartesian Coordinates

classifier	5 seconds time frame							
	Setting 1	Setting 2	Setting 3	Setting 4	Setting 5	Setting 6	Setting 7	Mean
kNN (k=5)	88.40	85.60	59.60	98.40	91.60	86.80	96.80	86.74
Decision Tree	82.40	80.40	62.80	95.20	86.80	86.80	96.80	84.46
SVM (Linear)	80.00	72.40	60.80	96.00	89.20	86.80	95.20	82.91
SVM (Poly 2)	82.80	61.20	62.80	96.40	88.80	89.20	98.00	82.74
Naive Bayes	88.80	80.80	62.00	97.60	92.40	86.00	98.00	86.51
LDA	81.20	71.20	62.00	95.60	89.20	83.60	96.40	82.74
Mean	83.93	75.27	61.67	96.53	89.67	86.53	96.87	84.35

Table 6: Accuracies under 5 seconds time frame in Cartesian coordinates

classifier	10 seconds time frame							
	Setting 1	Setting 2	Setting 3	Setting 4	Setting 5	Setting 6	Setting 7	Mean
kNN (k=5)	90.80	88.80	70.40	99.20	96.40	93.20	98.80	91.09
Decision Tree	90.40	84.80	63.20	96.80	92.80	90.10	96.80	87.84
SVM (Linear)	85.20	77.60	69.60	96.00	92.40	88.40	95.60	86.40
SVM (Poly 2)	88.80	60.00	70.80	97.60	94.80	92.40	99.20	86.23
Naive Bayes	88.80	82.00	68.40	97.60	95.20	92.00	97.60	88.80
LDA	85.20	73.60	69.60	96.00	93.20	87.60	96.40	85.94
Mean	88.20	77.80	68.67	97.20	94.13	90.62	97.40	87.72

Table 7: Accuracies under 10 seconds time frame in Cartesian coordinates

classifier	15 seconds time frame							
	Setting 1	Setting 2	Setting 3	Setting 4	Setting 5	Setting 6	Setting 7	Mean
kNN (k=5)	94.80	87.20	78.00	99.20	95.60	93.20	96.80	92.11
Decision Tree	93.20	84.40	75.60	96.80	96.00	85.20	96.80	89.71
SVM (Linear)	84.00	77.20	71.60	96.40	90.80	87.60	98.00	86.51
SVM (Poly 2)	89.20	66.40	74.00	98.80	95.20	93.20	98.80	87.94
Naive Bayes	90.80	80.40	72.40	97.60	95.20	91.20	97.60	89.31
LDA	86.40	73.20	71.60	97.20	93.60	86.80	96.80	86.51
Mean	89.73	78.13	73.87	97.67	94.40	89.53	97.47	88.69

Table 8: Accuracies under 15 seconds time frame in Cartesian coordinates

classifier	20 seconds time frame							
	Setting 1	Setting 2	Setting 3	Setting 4	Setting 5	Setting 6	Setting 7	Mean
kNN (k=5)	95.20	91.60	80.80	99.20	96.00	95.60	97.20	93.66
Decision Tree	91.20	87.60	76.40	98.00	95.20	92.80	98.00	91.31
SVM (Linear)	86.00	76.40	72.00	96.00	91.60	90.00	96.80	86.97
SVM (Poly 2)	89.60	64.40	78.80	98.80	94.80	91.60	98.80	88.11
Naive Bayes	93.60	81.60	72.80	97.60	94.80	91.20	97.20	89.83
LDA	89.60	72.80	74.00	96.40	93.60	89.60	97.60	87.66
Mean	90.87	79.07	75.80	97.67	94.33	91.80	97.60	89.59

Table 9: Accuracies under 20 seconds time frame in Cartesian coordinates

1.3 In summary

So in summary Table 2 in the manuscript should read,

Window length (seconds)	Cartesian	Spherical
5	96.87 \pm 1.06	90.20 \pm 3.05
10	97.40 \pm 1.04	97.47 \pm 1.88
15	97.47 \pm 0.83	98.27 \pm 1.53
20	97.60 \pm 0.72	99.07 \pm 1.72