Digital Dynamics

Group Members:

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Capillo, Bryan Jade

Honrada, Marman John Paul

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1. Concatenating

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Fitting 5 folds for each of 18 candidates, totalling 90 fits
[CV 1/5; 1/18] START features__pca__n_components=1, features__univ_select__k=1, svm__C=0.1
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[CV 3/5; 1/18] END features__pca__n_components=1, features__univ_select__k=1, svm__C=0.1;, score=0.867 to
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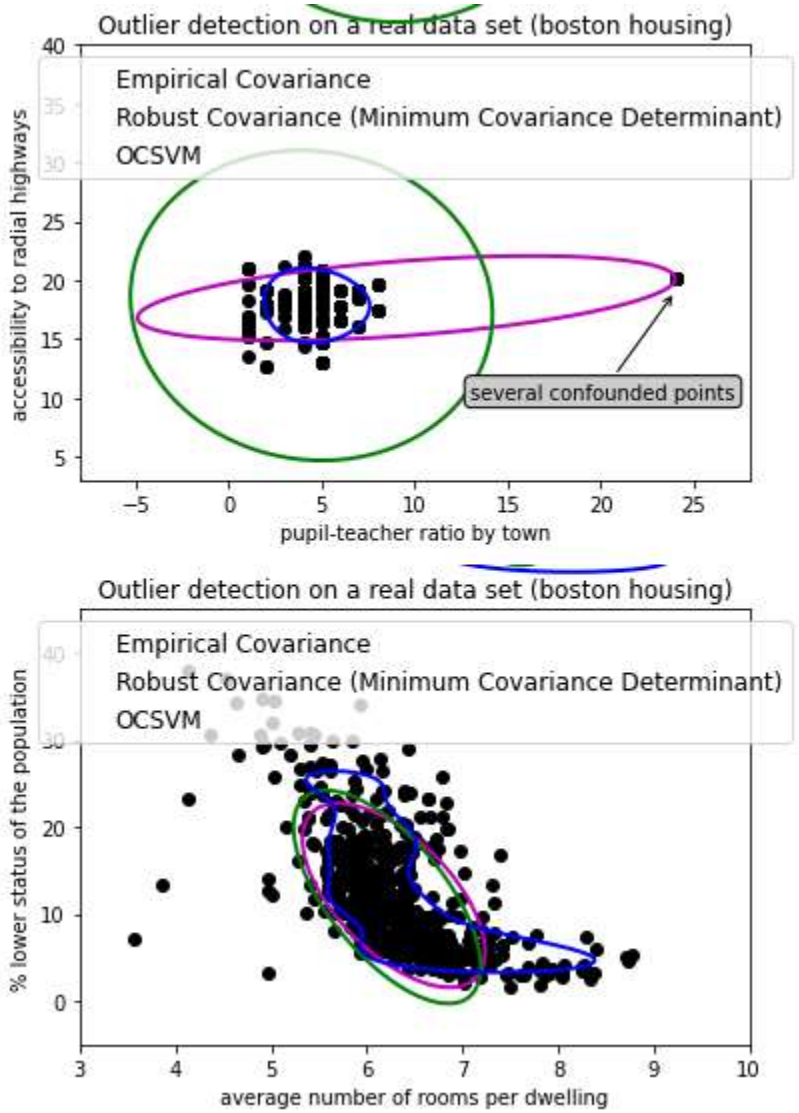
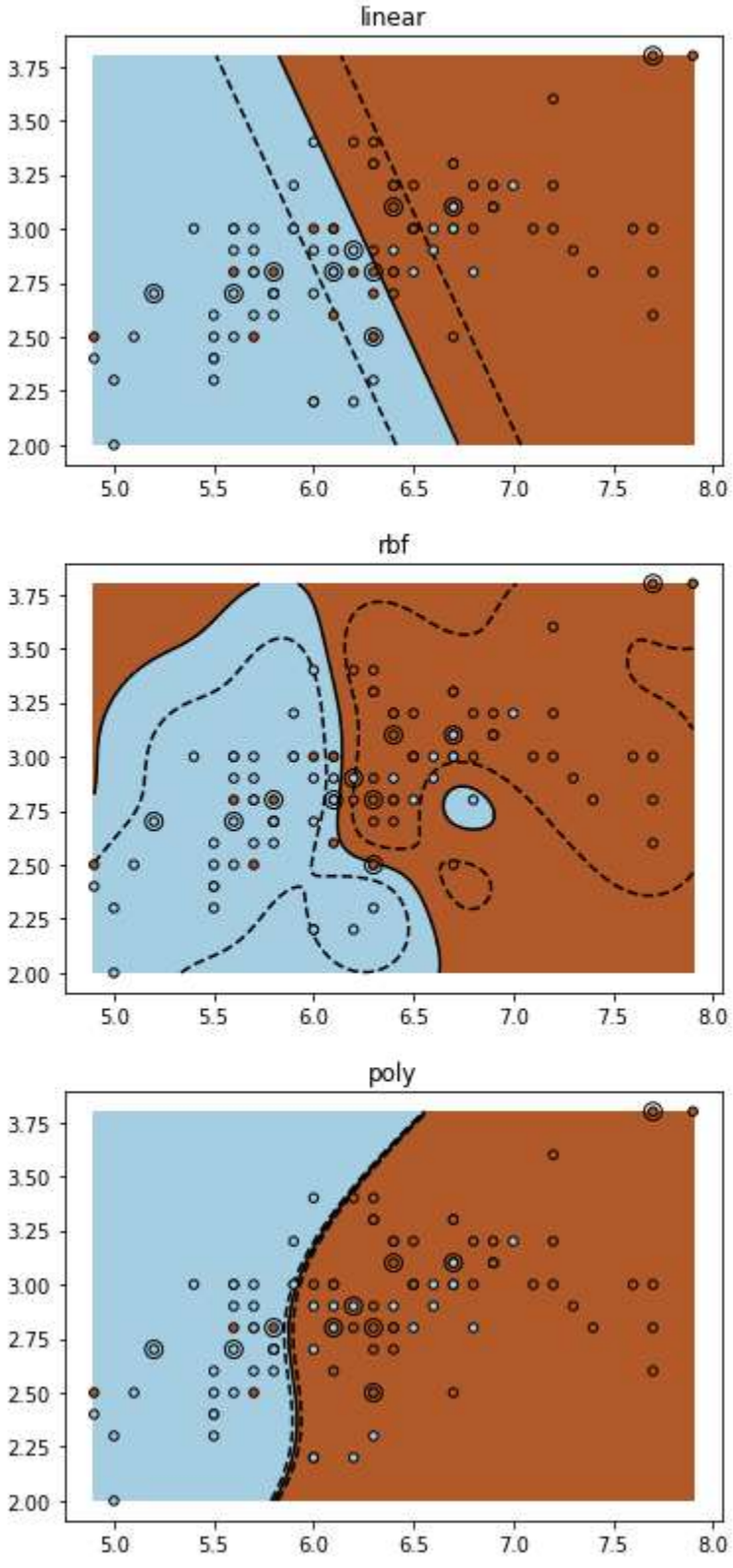
otal time=   0.0s
[CV 1/5; 17/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=1
[CV 1/5; 17/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=1;, score=0.967 tot
al time=   0.0s
[CV 2/5; 17/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=1
[CV 2/5; 17/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=1;, score=1.000 tot
al time=   0.0s
[CV 3/5; 17/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=1
[CV 3/5; 17/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=1;, score=0.967 tot
al time=   0.0s
[CV 4/5; 17/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=1
[CV 4/5; 17/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=1;, score=0.967 tot
al time=   0.0s
[CV 5/5; 17/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=1
[CV 5/5; 17/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=1;, score=1.000 tot
al time=   0.0s
[CV 1/5; 18/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=10

```
[CV 1/5; 18/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=10;, score=1.000 t
otal time=   0.0s
[CV 2/5; 18/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=10
[CV 2/5; 18/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=10;, score=1.000 t
otal time=   0.0s
[CV 3/5; 18/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=10
[CV 3/5; 18/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=10;, score=0.900 t
otal time=   0.0s
[CV 4/5; 18/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=10
[CV 4/5; 18/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=10;, score=0.967 t
otal time=   0.0s
[CV 5/5; 18/18] START features__pca__n_components=3, features__univ_select__k=2, svm__C=10
[CV 5/5; 18/18] END features__pca__n_components=3, features__univ_select__k=2, svm__C=10;, score=1.000 t
otal time=   0.0s
Pipeline(steps=[('features',
                 FeatureUnion(transformer_list=[('pca', PCA(n_components=3)),
                                                ('univ_select',
                                                 SelectKBest(k=1))])),
                ('svm', SVC(C=10, kernel='linear'))])
```

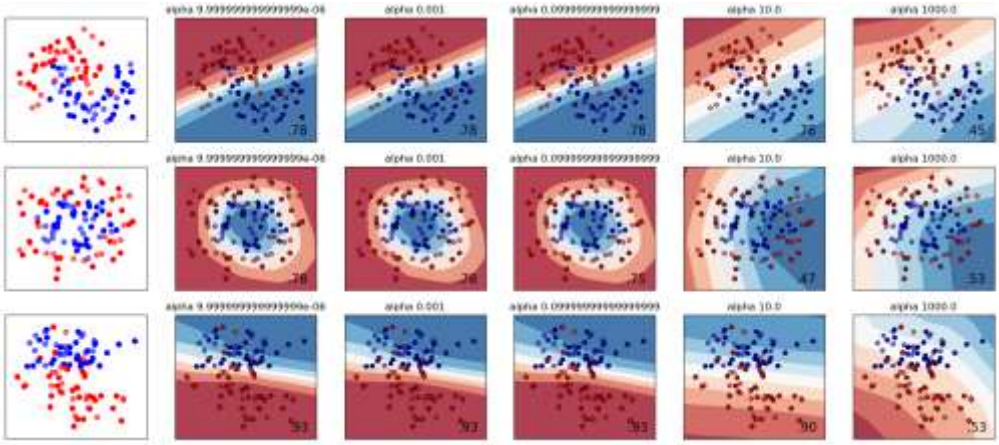
2. Applications - Boston Housing Dataset



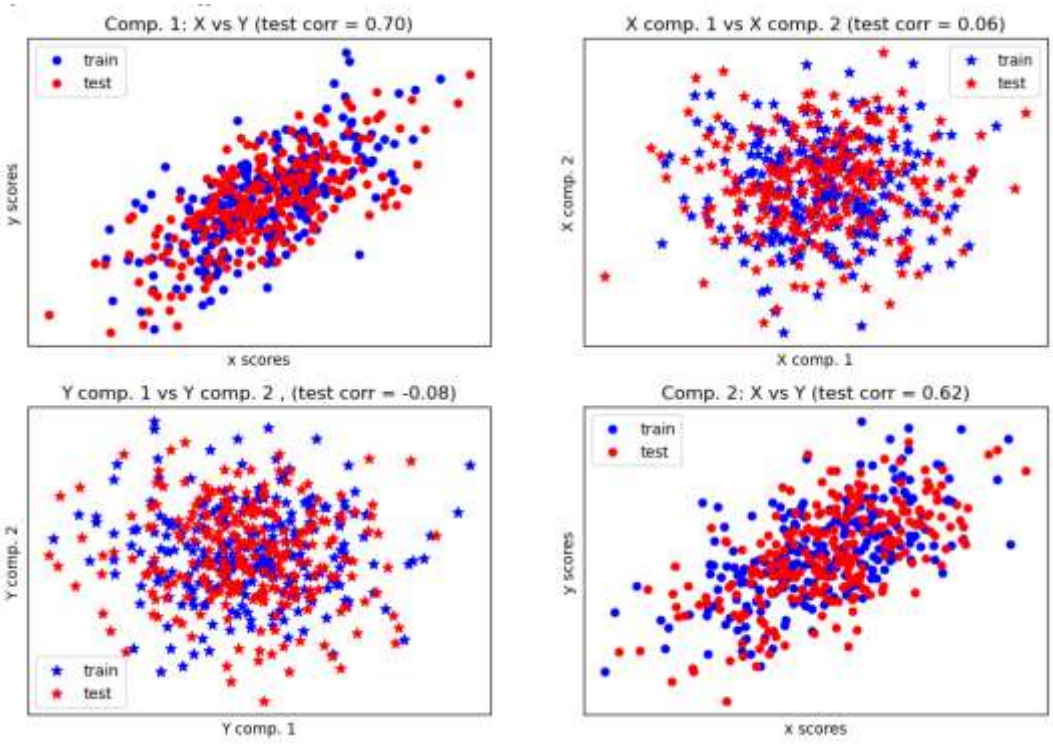
3. Support Vector Machine - Iris Dataset



4. Neural Networks



5. Cross decomposition



Corr(X)
[[1. 0.5 0.03 0.09]
 [0.5 1. 0.03 0.09]
 [0.03 0.03 1. 0.48]
 [0.09 0.09 0.48 1.]]
Corr(Y)
[[1. 0.48 0.05 0.06]
 [0.48 1. -0.05 -0.04]
 [0.05 -0.05 1. 0.49]
 [0.06 -0.04 0.49 1.]]

True B (such that: Y = XB + Err)
[[1 1 1]
 [2 2 2]
 [0 0 0]
 [0 0 0]
 [0 0 0]
 [0 0 0]
 [0 0 0]
 [0 0 0]
 [0 0 0]
 [0 0 0]]
Estimated B
[[1.1 1. 1.]
 [2.1 2.1 2.1]
 [0. 0. -0.]
 [0. -0. -0.]
 [0. 0. 0.]
 [0. -0. -0.]
 [-0. 0. 0.1]
 [0.1 0. 0.]
 [0. 0. -0.]
 [0. -0. -0.]]
Estimated betas
[[1.]
 [2.]
 [-0.]
 [0.]
 [0.]
 [0.]
 [-0.]
 [-0.1]
 [-0.]
 [0.]]