estimation_of_probability

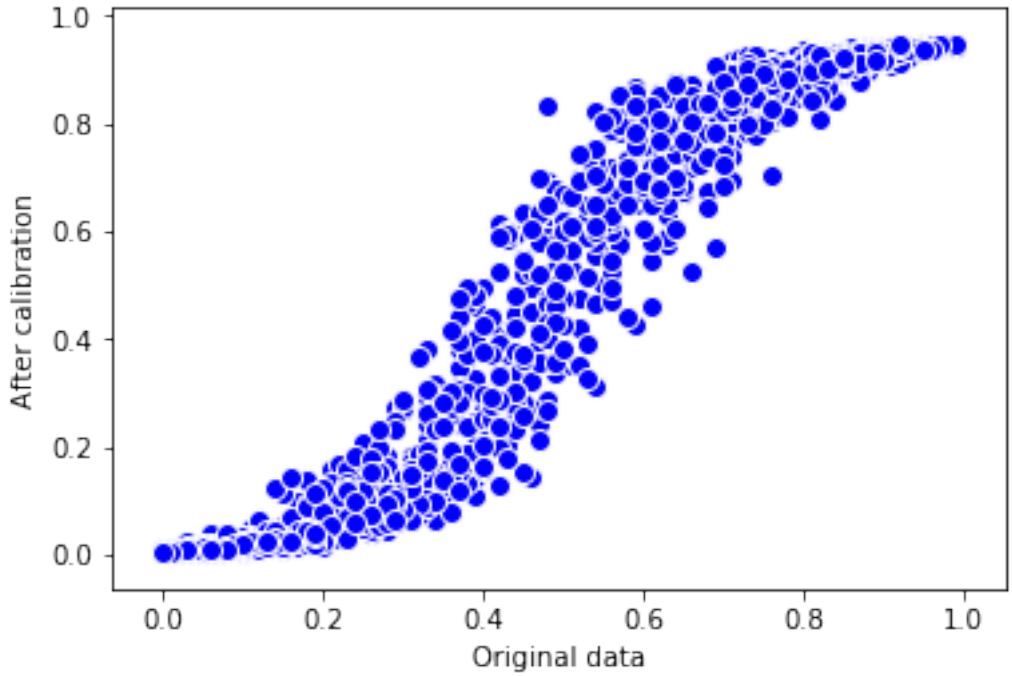
March 10, 2019

In [1]:
```
import pandas as pd
import matplotlib as plt
from sklearn.calibration import CalibratedClassifierCV, calibration_curve
from sklearn.model_selection import cross_val_score
from sklearn.ensemble import RandomForestClassifier
import pickle
import numpy as np
covertype_dataset = pickle.load(open('covertype_dataset.pickle','rb'))
hypothesis = RandomForestClassifier(n_estimators=100, random_state=101)
calibration = CalibratedClassifierCV(hypothesis, method='sigmoid', cv=5) # maps the re
covertype_X = covertype_dataset.data[:15000,:]
covertype_Y = covertype_dataset.target[:15000]
covertype_test_X = covertype_dataset.data[15000:25000,:]
covertype_test_Y = covertype_dataset.target[15000:25000]
```

```
D:\Python\Lib\importlib\_bootstrap.py:219: RuntimeWarning: numpy.ufunc size changed, may indica
  return f(*args, **kwds)
D:\Python\Lib\importlib\_bootstrap.py:219: RuntimeWarning: numpy.ufunc size changed, may indica
  return f(*args, **kwds)
D:\Python\Lib\importlib\_bootstrap.py:219: RuntimeWarning: numpy.ufunc size changed, may indica
  return f(*args, **kwds)
```

In [2]:
```
hypothesis.fit(covertype_X, covertype_Y)
calibration.fit(covertype_X, covertype_Y)
prob_raw = hypothesis.predict_proba(covertype_test_X)
prob_cal = calibration.predict_proba(covertype_test_X)
```

In [6]:
```
%matplotlib inline
covertypes = ['Spruce/Fir','Lodgepole Pine', 'Ponderosa Pine', 'Cottonwod/Wollow', 'As
tree_kind = covertypes.index('Ponderosa Pine')
probs = pd.DataFrame(list(zip(prob_raw[:,tree_kind], prob_cal[:,tree_kind])),
                     columns=['Original data', 'After calibration'])
plot = probs.plot(kind='scatter', x=0, y=1, s=64, c='blue', edgecolors='white')
```


1.0
0.8
0.6
0.4
0.2
0.0
After calibration
0.0
0.2
0.4
0.6
0.8
1.0
Original data

In [ ]: