

4-d

```
from scipy.stats import gaussian_kde
import matplotlib.pyplot as plt
import numpy as np

m = np.loadtxt("WaterTable.csv", delimiter=",")
X = []
Y = []

for index in m:
    if index[2] == 0:
        X.append(index[0])
        Y.append(index[1])
        plt.plot(index[0],index[1],'o', color = 'red')
    elif index[2] == 1:
        plt.plot(index[0], index[1],'x', color = 'blue')
X_data = np.array(X)
Y_data = np.array(Y)
x = X_data
y = Y_data

k = gaussian_kde(np.vstack([X_data, Y_data]))

xi, yi = np.mgrid[x.min():x.max():x.size**0.5*1j,y.min():y.max():y.size**0.5*1j]
zi = k(np.vstack([xi.flatten(), yi.flatten()]))

zi = (zi-zi.min())/(zi.max() - zi.min())
zi =zi.reshape(xi.shape)

#set up plot
origin = 'lower'
levels = [0,0.1,0.25,0.5,0.68, 0.95, 0.975,1]

plt.contour(xi, yi, zi,levels = levels,
            colors=('green',),
            linewidths=(3,),
            origin=origin)
plt.show()
```