import pandas as pd

import numpy as np

import matplotlib.pyplot as plt

import requests

data = pd.read\_csv('./mobrobo.csv')

data.columns

data.shape

data

yd=data[['vl','vr']]/100

print(yd)

s=data['X']/100 #X

print(s)

#createA

d=3

#N=data.shape[0]

#W calculate

#predict\_y

#mse

def createA(s,D):

N = s.shape[0]

A = np.ones((N,D+1))

for D in range(1,D+1):

A[:,D] = np.power(s,D)

return A

def train\_w(A, yd):

N = yd.shape[0]

D = 3

if N>D+1:

w = np.linalg.inv(A.T.dot(A)).dot(A.T).dot(yd) # Least sq sol

elif N<=D+1:

w = A.T.dot(np.linalg.inv(A.dot(A.T))).dot(yd) # Min-norm; add 0.00000001\*np.eye(A.shape[0])

return w

A=createA(s,d)

print(train\_w(A,yd))

def predict\_y(w, s):

D = w.shape[0]-1

A = createA(s, D)

y = A.dot(w)

return y

w=train\_w(A, yd)

from sklearn.metrics import mean\_squared\_error

mse=mean\_squared\_error(yd,predict\_y(w,s))

print(mse)