

การบ้านกระบวนวิชา 204789

คำชี้แจง

ชุดการบ้านนี้ประกอบด้วยการบ้านจำนวน 4 ชิ้น ชิ้นละ 10 คะแนน โดยมีรายละเอียดดังนี้

1. Bayesian learning

Assume we have a data set described the following three variables:

Hair = B,D, where B=blonde, D=dark.

Height = T,S, where T=tall, S=short.

Country = G,P, where G=Greenland, P=Poland.

You are given the following training data set (Hair, Height, Country):

(B,T,G), (D,T,G), (D,T,G), (D,T,G), (B,T,G), (B,S,G), (B,S,G), (D,S,G),
(B,T,G), (D,T,G), (D,T,G), (D,T,G), (B,T,G), (B,S,G), (B,S,G), (D,S,G),
(B,T,P), (B,T,P), (B,T,P), (D,T,P), (D,T,P), (D,S,P), (B,S,P), (D,S,P),

Now, suppose you observe a new individual tall with blond hair, and you want to use these training data to determine the most likely country of origin. Compute the maximum a posteriori (MAP) answer to the above question, using the Naive Bayes assumption.

2. Implement a dual formulation of an SVM + Gaussian kernel on JuliaBox and classify 'banana' dataset using 80%/20% training/testing data splitting. Run and record the results and export your workspace as a PDF file for submission. The very last cell of your PDF should print the accuracy on the test data. (Try to divide your work into multiple cells)
3. Implement a Linear Discriminant Analysis on JuliaBox and classify 'boston' dataset using 80/20 data splitting. Run and record the results and export your workspace as a PDF file for submission. The very last cell of your PDF should print the accuracy on the test data. (Try to divide your work into multiple cells)
4. AdaBoost (infact boosting in general) is quite sensitive to outliers or noises in the dataset. Do some research to find out an alternative boosting methods that are robust to noise. Summarise the main idea of one of the algorithms you have found in a 1-page-long A4 paper. Your answer should also discuss the differences between the algorithm and AdaBoost. (in Thai)

การส่งงาน

ให้ส่งงานทั้งหมดในรูปแบบของ PDF ไฟล์ มาที่ jakramate.b@cmu.ac.th โดยตั้งชื่อไฟล์ตาม hwX_5XXXXXXXXX.pdf (ชื่อการบ้าน_รหัสนักศึกษา.pdf) ภายในวันที่ 17 มีนาคม 2560