



Introduction to Pattern Recognition

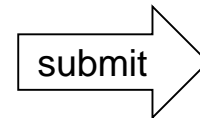
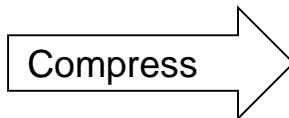
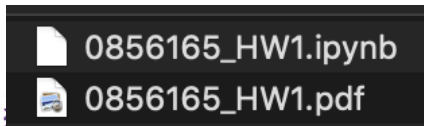
Homework 2 announcement

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Homework 2

- **Deadline: May. 1, Fri at 23:59.**
 1. Code assignment (60%): Implementing Fisher's linear discriminat using numpy
 2. Short answer questions (40%)
- **Submit your code (.py/.ipynb) and reports (.pdf) on E3**
 - [Sample Code](#)
 - [HW2 questions](#)
- Please follow the **file naming rules <STUDENT ID>_HW2.pdf**, otherwise, you will get penalty of your scores



E3





Coding

- Write beautiful Python codes with [PEP8 guidelines](#) for readability. Basic requirement: use whitespace correctly!
- [PEP8 online checker](#)

Python

Recommended

```
def function(default_parameter=5):  
    # ...
```

Not recommended

```
def function(default_parameter = 5):  
    # ...
```

PEP8 online

Check your code for PEP8 requirements

Just paste your code here

1

Check code



Reports

- Submit in PDF format
- Include the answers of coding part in the reports!
- Please see the sample submission file on E3

NCTU Pattern Recognition, Homework 1| Example

Part. 1, Coding (60%):

Q1: Your answer...

Q2: Your answer....

Q3: Your answer....

Q4: Your answer....

Q5: Your answer....

Part. 2, Questions (40%):

Q1: Your answer...

Q2: Your answer...

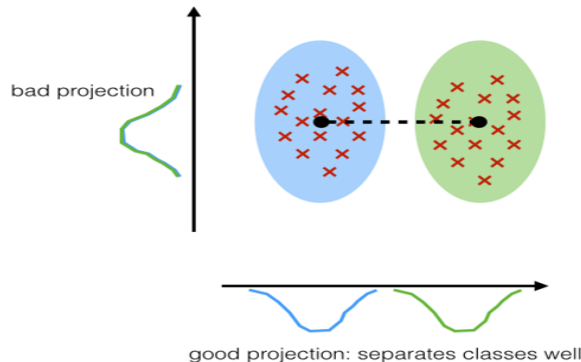


Fisher's linear discriminant

- FLD is a “supervised” method and computes the directions (“linear discriminants”) that will represent the axes that maximize the separation between multiple classes.
- FLD seeks the projection \mathbf{w} that gives a **large distance between the projected data means** while giving a **small variance within each class**

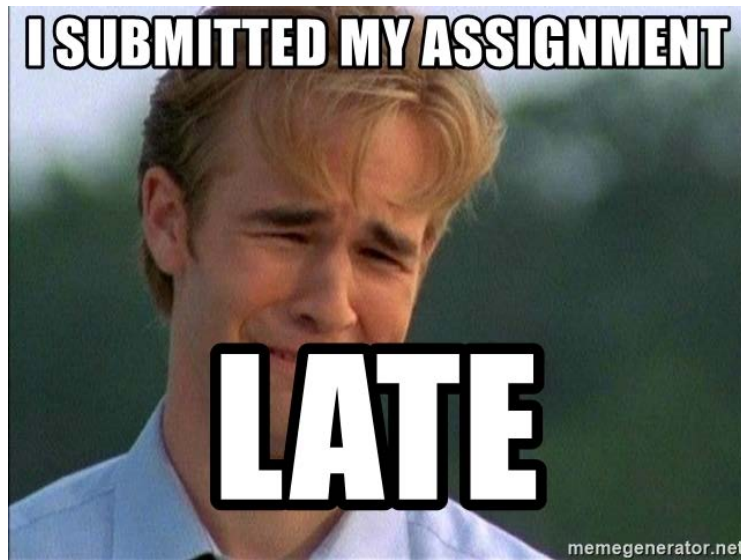
LDA:

maximizing the component axes for class-separation



Late Policy

- We will deduct a late penalty of 20 points per additional late day
- For example, If you get 90 points of HW1 but delay for two days, your will get only $90 - (20 \times 2) = 50$ points!



Honor code

- We have found that some students develop their codes based on those by other classmates or on Internet in HW1
 - It is **NOT** allowed
- You should implement all algorithms by yourself
- If there is any plagiarism in your homework, you will get no points



Notice

- Submit your homework on [E3-system](#) !
- Check your email regularly, we will mail you if there are any updates or problems of the homework
- If you have any questions or comments for the homework, please mail Jimmy and Chung-Hsuan and cc Prof. Lin
 - Prof. Lin: lin@cs.nctu.edu.tw
 - TA, Jimmy: d08922002@ntu.edu.tw
 - TA, Chung-Hsuan: scott19880525@gmail.com



Have fun!

LDA - Projection

