






# 影像辨識原理

黃嵩仁 王項 蕭擎軒

# Face API



Neutral:   
Happiness:   
Surprise:   
Sadness: 

Anger:   
Disgust:   
Fear:   
Contempt: 

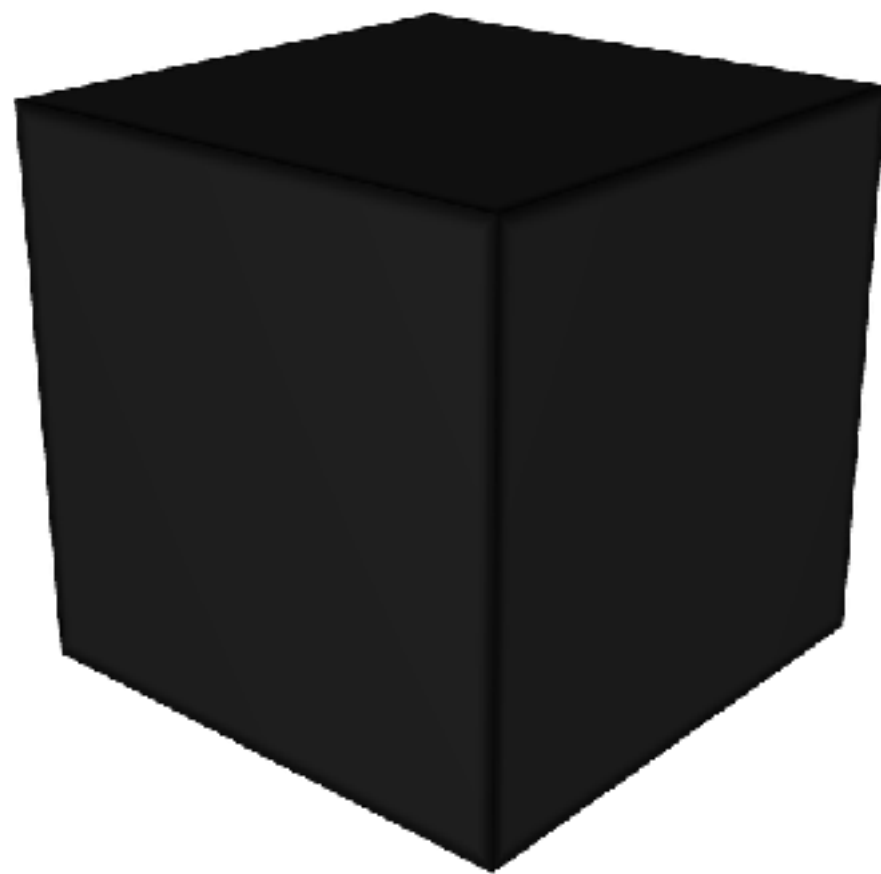


Get started for free at [projectoxford.ai](https://projectoxford.ai)

# iPhone X



# AI

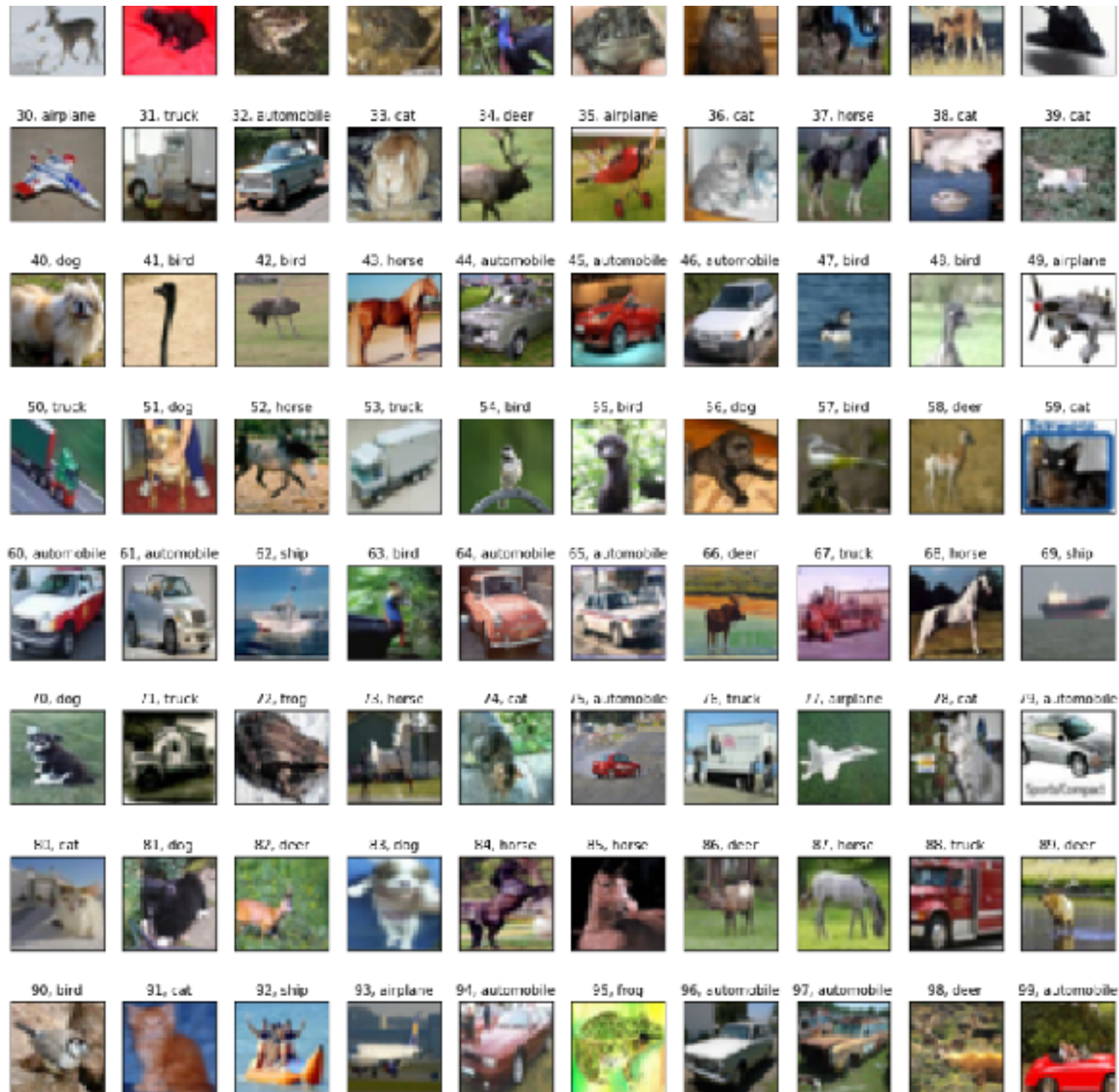


# MNIST

									
label: 3 prediction: 3	label: 0 prediction: 0	label: 0 prediction: 0	label: 3 prediction: 3	label: 1 prediction: 1	label: 9 prediction: 9	label: 6 prediction: 6	label: 5 prediction: 5	label: 2 prediction: 2	label: 5 prediction: 5
									
label: 9 prediction: 9	label: 2 prediction: 2	label: 9 prediction: 9	label: 3 prediction: 3	label: 0 prediction: 0	label: 4 prediction: 4	label: 2 prediction: 2	label: 0 prediction: 0	label: 7 prediction: 7	label: 1 prediction: 1
									
label: 1 prediction: 1	label: 2 prediction: 2	label: 1 prediction: 1	label: 5 prediction: 5	label: 3 prediction: 3	label: 3 prediction: 3	label: 9 prediction: 9	label: 7 prediction: 7	label: 8 prediction: 8	label: 6 prediction: 6
									
label: 5 prediction: 3	label: 6 prediction: 6	label: 1 prediction: 1	label: 3 prediction: 3	label: 8 prediction: 8	label: 1 prediction: 1	label: 0 prediction: 0	label: 5 prediction: 5	label: 1 prediction: 1	label: 3 prediction: 3
									
label: 1 prediction: 1	label: 5 prediction: 5	label: 5 prediction: 5	label: 6 prediction: 6	label: 1 prediction: 1	label: 8 prediction: 8	label: 5 prediction: 5	label: 1 prediction: 1	label: 7 prediction: 7	label: 9 prediction: 9
									
label: 4 prediction: 4	label: 6 prediction: 6	label: 2 prediction: 2	label: 2 prediction: 2	label: 5 prediction: 5	label: 0 prediction: 0	label: 6 prediction: 6	label: 5 prediction: 5	label: 6 prediction: 6	label: 3 prediction: 3
									
label: 7 prediction: 7	label: 2 prediction: 2	label: 0 prediction: 0	label: 8 prediction: 8	label: 8 prediction: 8	label: 5 prediction: 5	label: 4 prediction: 4	label: 1 prediction: 1	label: 1 prediction: 1	label: 4 prediction: 4
									



# CIFAR-10





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# Microsoft Student Partners



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MSP

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微軟

When technology

微軟... 實習計劃  
家... 技充滿熱情  
助學生們成為



設計開發團隊



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# Facebook: 35.3%



寫點有關這些相片的說明.....



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# Face API: 47.0%

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See it in action



Detection result:

JSON:

```
[
  {
    "faceId": "2546e8fa-7b27-4b32-870c-ac1f6711f1ad",
    "faceRectangle": {
      "top": 737,
      "left": 215,
      "width": 104,
      "height": 104
    },
    "faceAttributes": {
      "hair": {
        "bald": 0.01,
        "invisible": false,
        "hairColor": [
          {
            "color": "black",
            "confidence": 1.0
          },
          {
            "color": "other",
            "confidence": 0.82
          }
        ]
      }
    }
  }
]
```

Image URL

Submit

Browse



**DIY**

**MSP: 70.6%**



```
In [25]: face_recognize('datasets/test_data/mspl2.JPG')
```





**How?**

# 臉部偵測

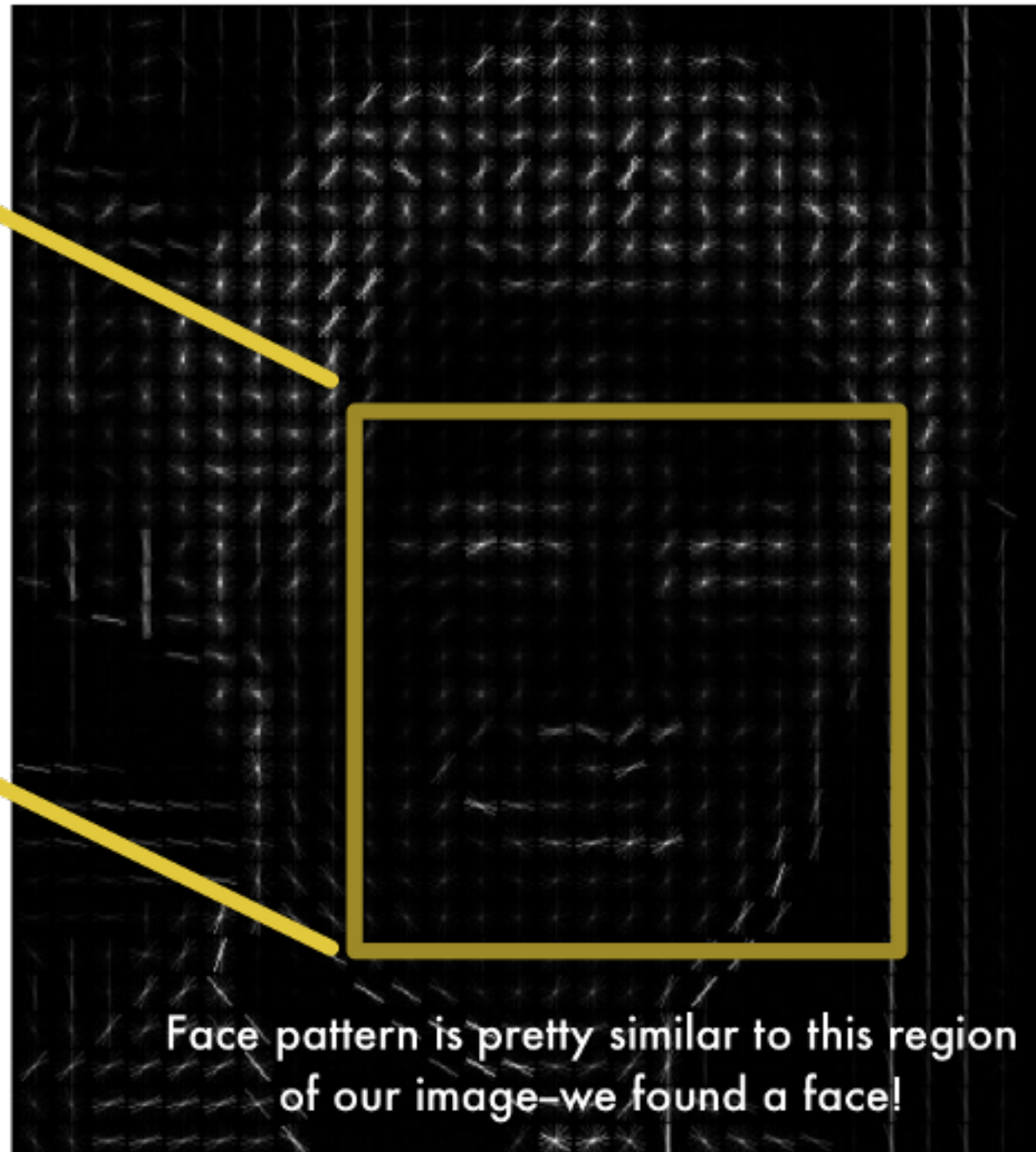
第一步



# HOG

HOG version of our image

HOG face pattern generated  
from lots of face images

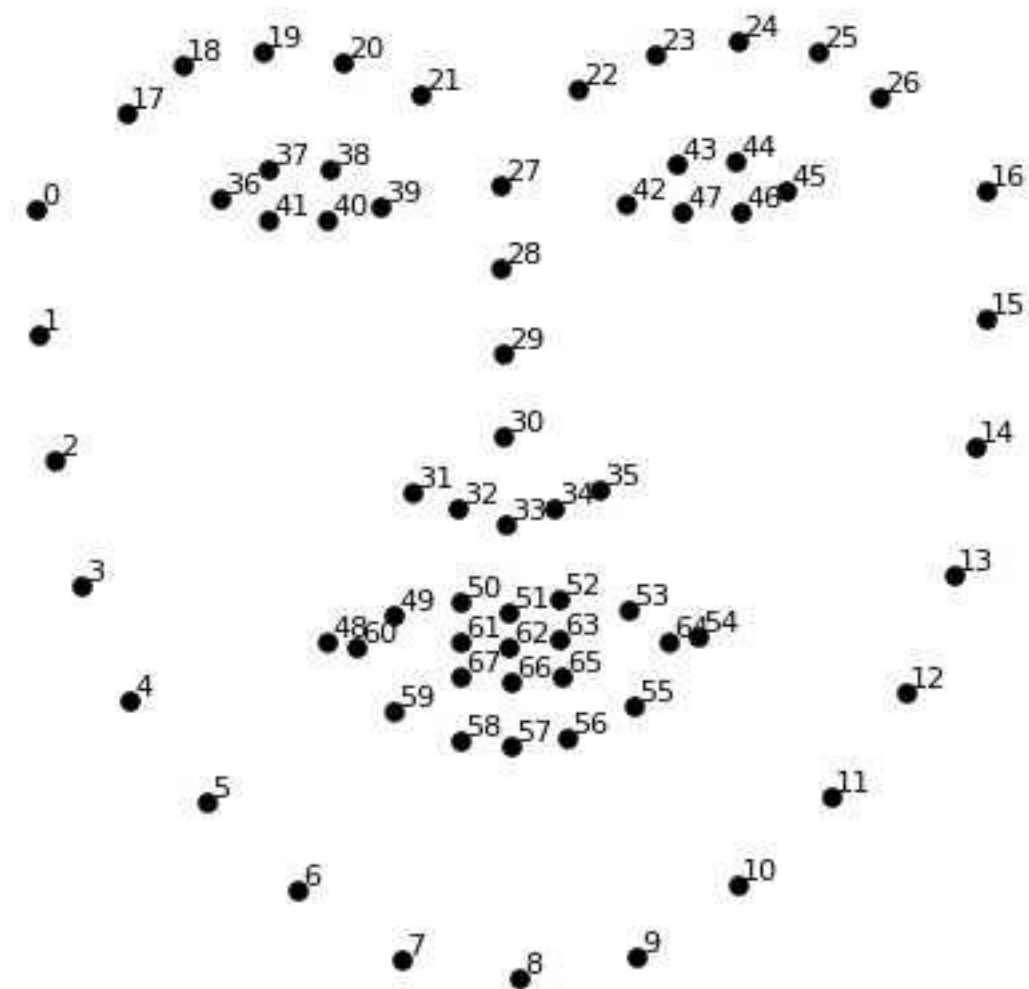


Face pattern is pretty similar to this region  
of our image—we found a face!

# 臉部特徵

第二步

# 特徴値 (68)





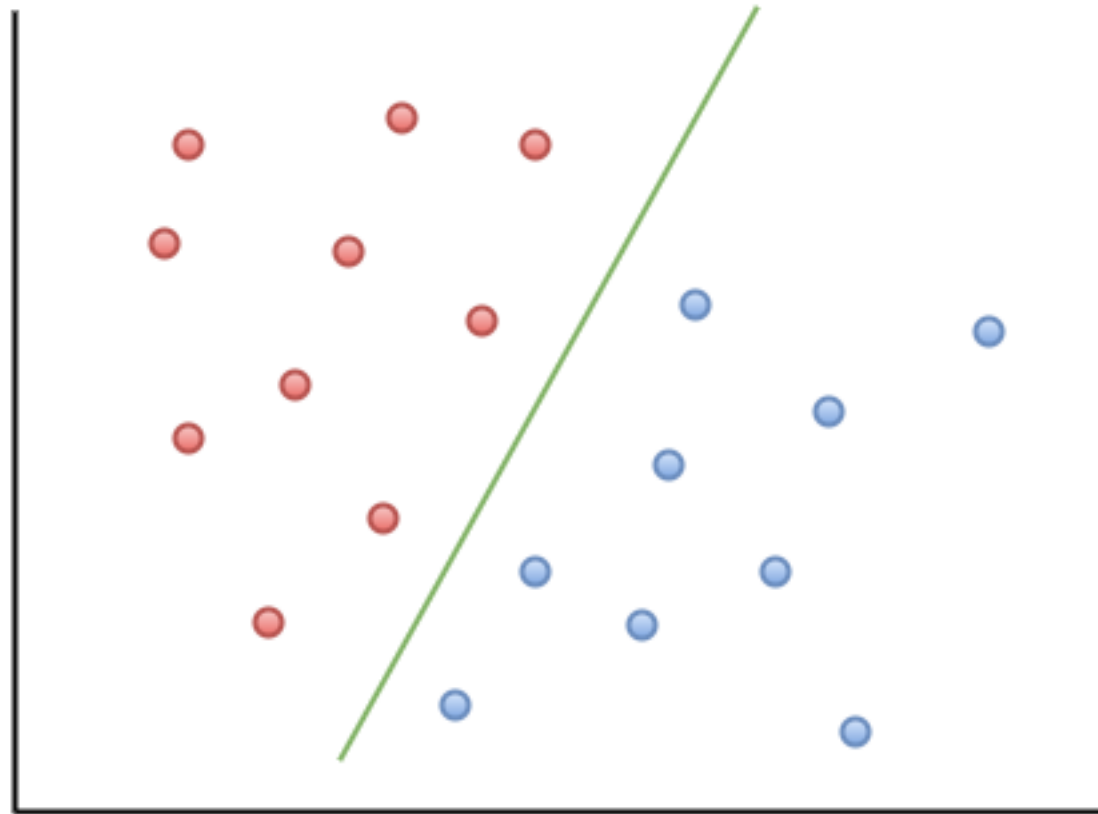
# 標準化

```
[[-0.06001724  0.07183111  0.00712205 ... -0.07181504  0.10425115
  0.00168948]
 [-0.14302206  0.10959253  0.02998669 ... -0.07323682  0.13067445
 -0.0083248 ]
 [-0.06329136  0.11590869  0.05751766 ... -0.09496544  0.08348781
  0.04038426]
 ...
 [-0.09341268  0.05503128  0.03679996 ... -0.01551273  0.07094968
  0.00357961]
 [-0.09119752  0.07436302 -0.00049158 ... -0.00436941  0.13520736
  0.00040393]
 [-0.15811449  0.07740904  0.02894036 ... -0.04112994  0.12135622
 -0.02009532]]
```

# 臉部辨識

第三步

# SVM







**Demo**