




影像辨識原理

黃嵩仁 王項 蕭擎軒

Face API



Neutral: 
Happiness: 
Surprise: 
Sadness: 

Anger: 
Disgust: 
Fear: 
Contempt: 

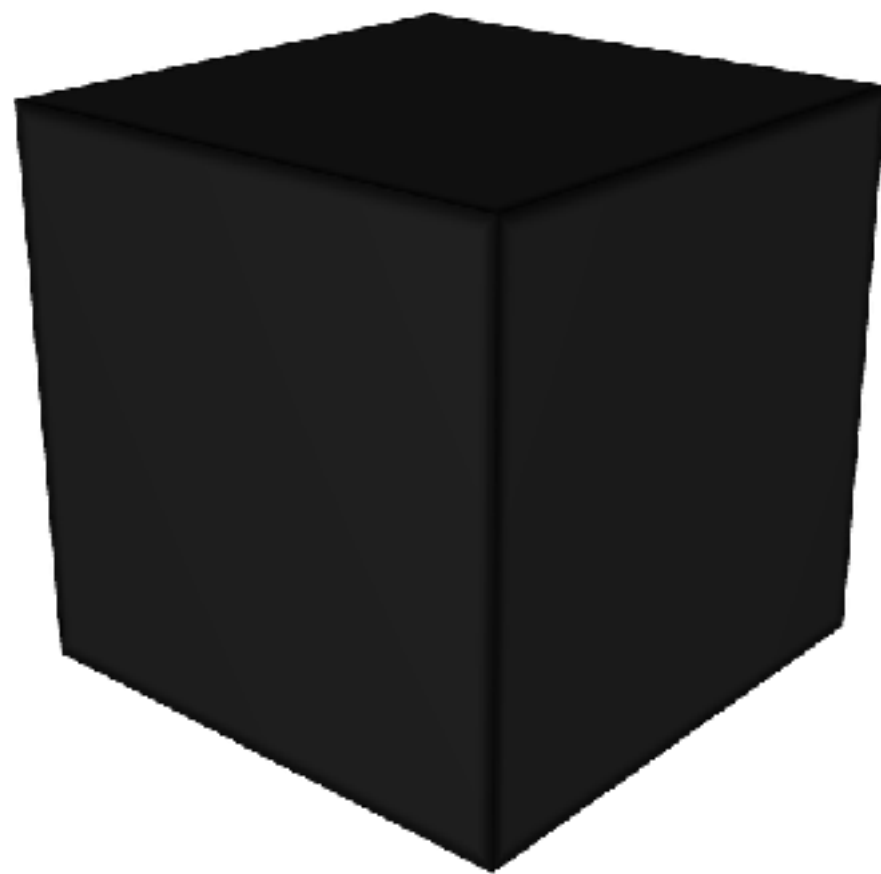


Get started for free at projectoxford.ai

iPhone X



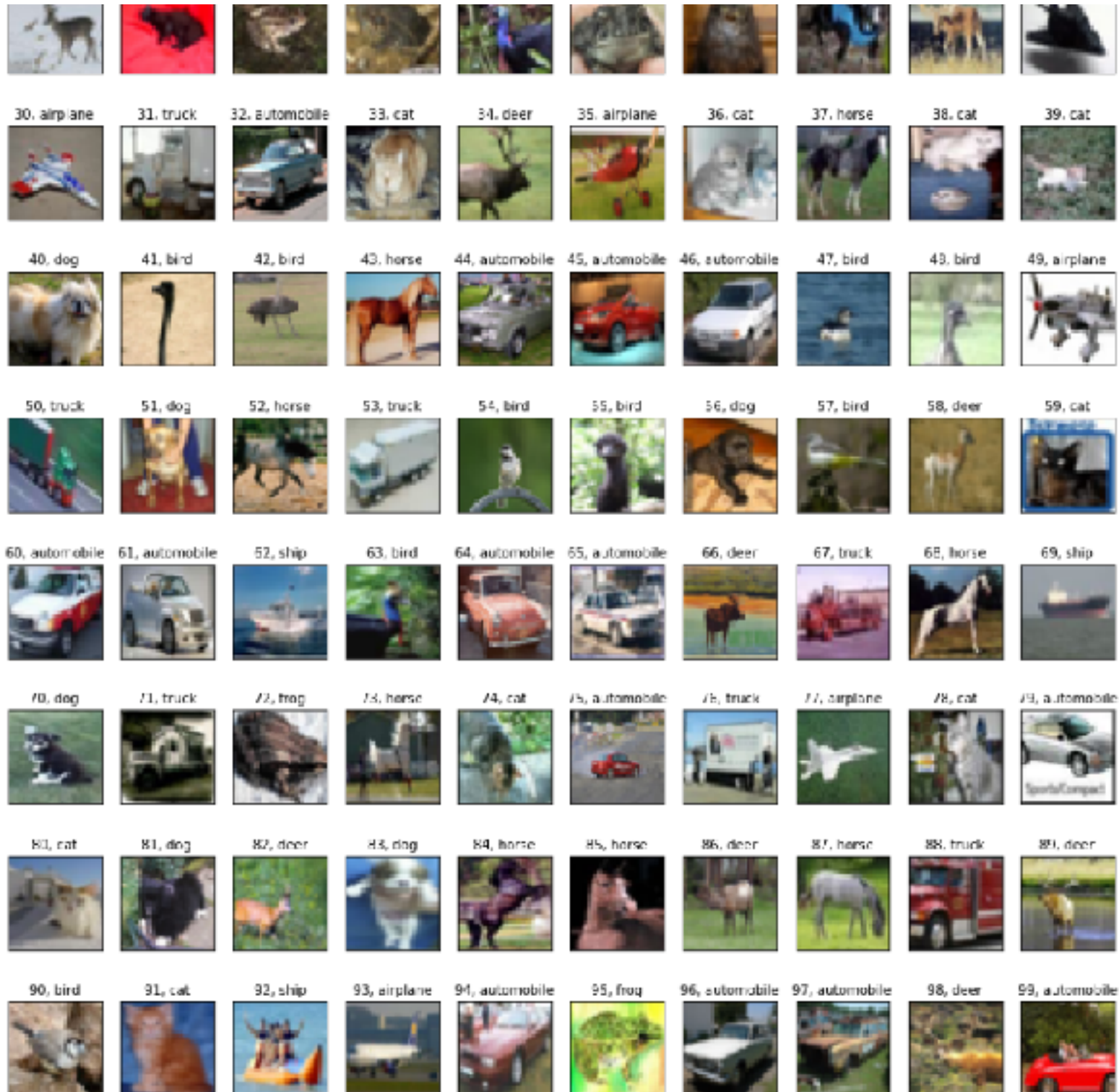
AI



MINST

									
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
									
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CIFAR-10



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MSP

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設計開發執行



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MSP

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When technology

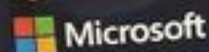
微軟 實習計劃
家 技充滿熱情
助學生們成為



設計開發團隊



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寫點有關這些相片的說明.....



寫點有關這些相片的說明.....



Facebook: 35.29%

DIY

MSP: 70.58%

How?

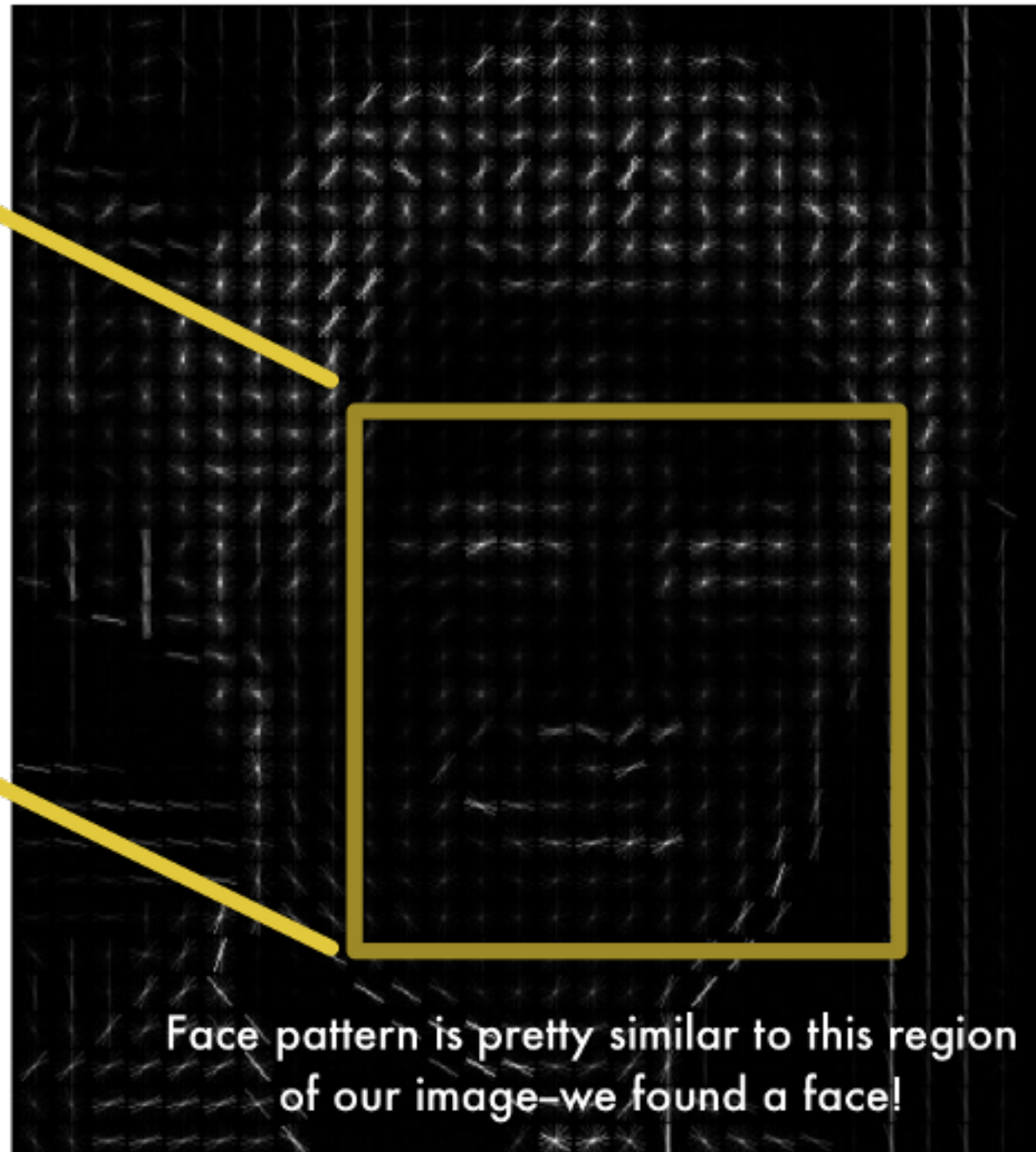
臉部偵測

第一步

HOG

HOG version of our image

HOG face pattern generated
from lots of face images

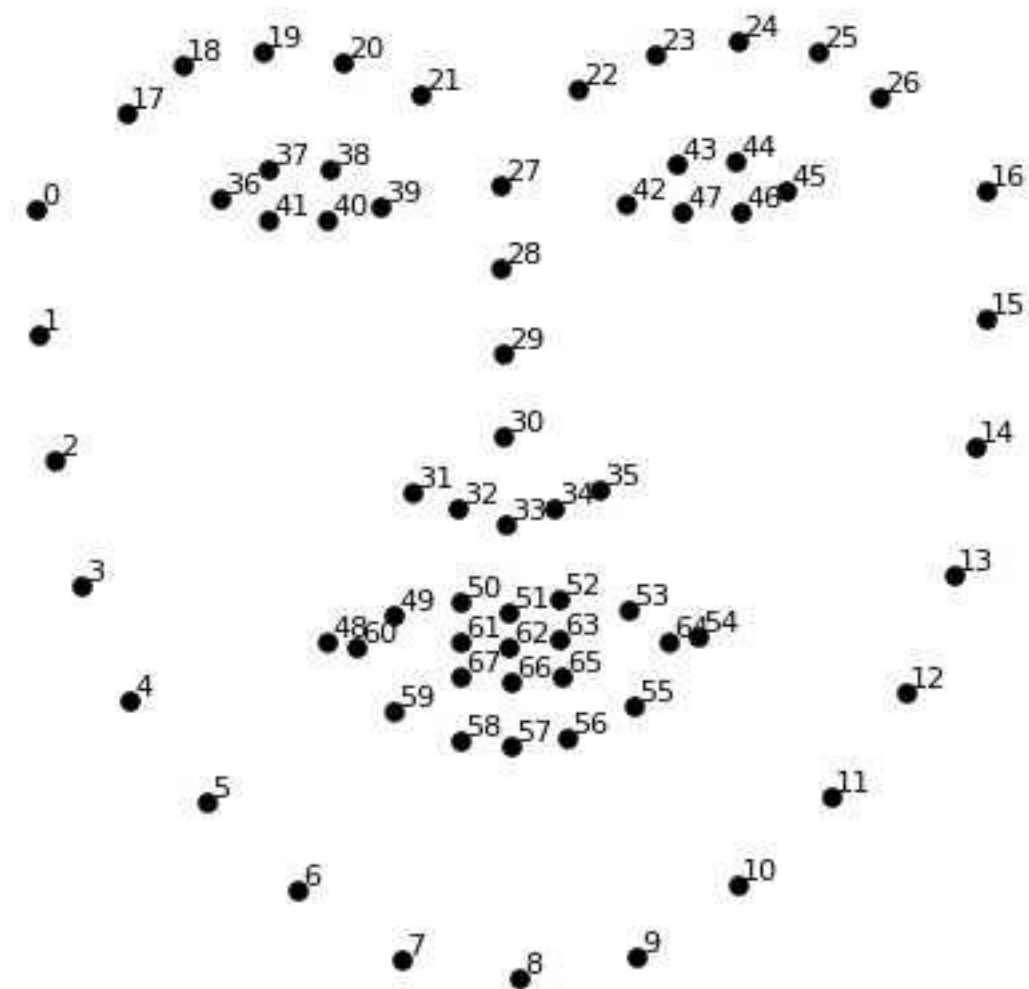


Face pattern is pretty similar to this region
of our image—we found a face!

臉部特徵

第二步

特徴値 (68)



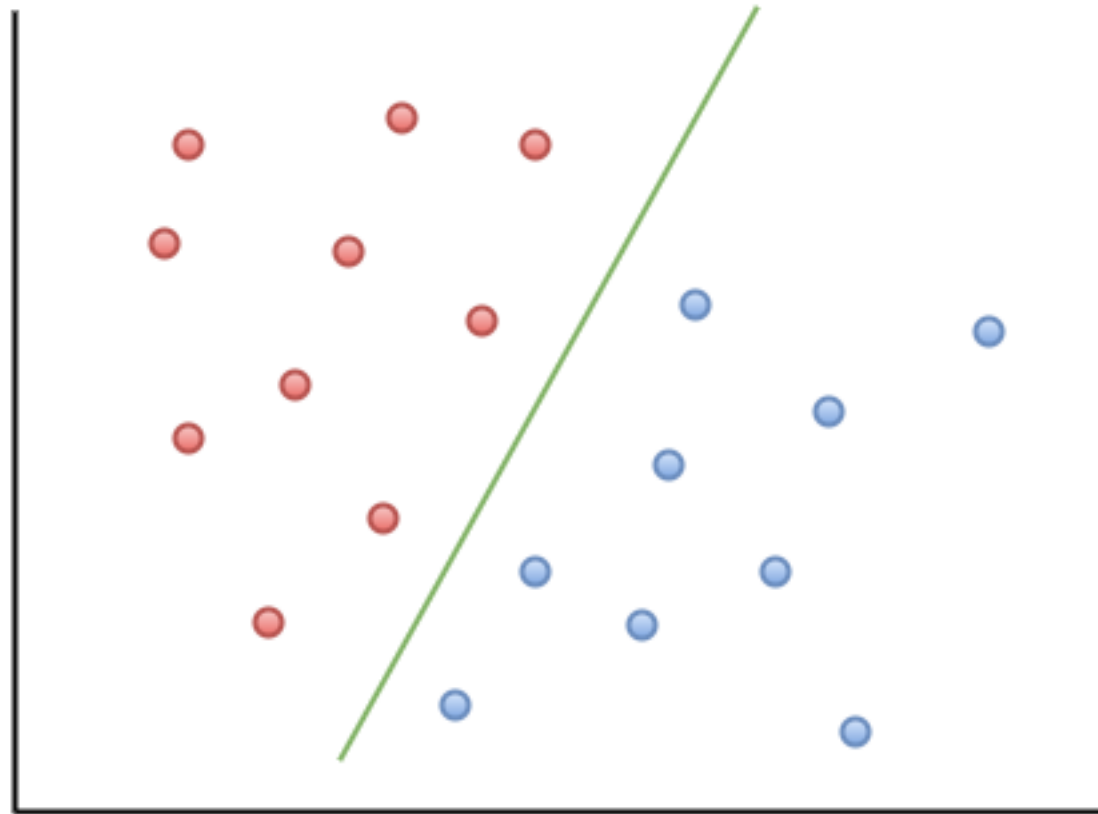
標準化

```
[[-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

Q:

- 為什麼 Face API, Facebook, iPhone X 可以瞬間完成臉部辨識？機器學習？深度學習？