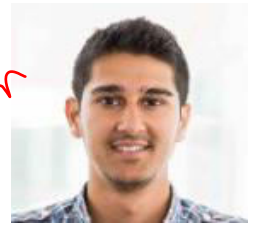
deeplearning.ai

Face recognition

One-shot learning

One-shot learning

RFID
Face Detection



Same person

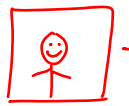
New person

All employees

Learning from one example to recognize the person again

How to do this classification?

1 Approach



→ CNN → O Softmax(5)

4 employees
+1 (None of the Above)

→ Doesn't work.
why?
① small training set
② If one other person joins in the employee list
⇒ Softmax model will change
(Not scalable) - Retrain the CNN every time someone joins!

Learning a "similarity" function

d(img1,img2) = degree of difference between images

Something like the edit distance problem

If d(img1,img2) $\leq \tau$ "same person"

$> \tau$ "diff person"

} used for Image verification (Not for facial recognition)

⇒ the dist. is min wrt employee #2
⇒ classify as emp #2

↳ for new person (not an employee) you hope "$d > \tau$" for each of the Images in the emp dataset so you can say the new person is dissimilar compared to all employees

- Notice that if tom. a new Employee enters the database, then an Incoming test Image only needs 1 operation to calculate the dist. b/w itself & the new Employee (Rather than change the softmax model function)
∴ More scalable

Q How to calculate d?

Next slide!

Andrew Ng