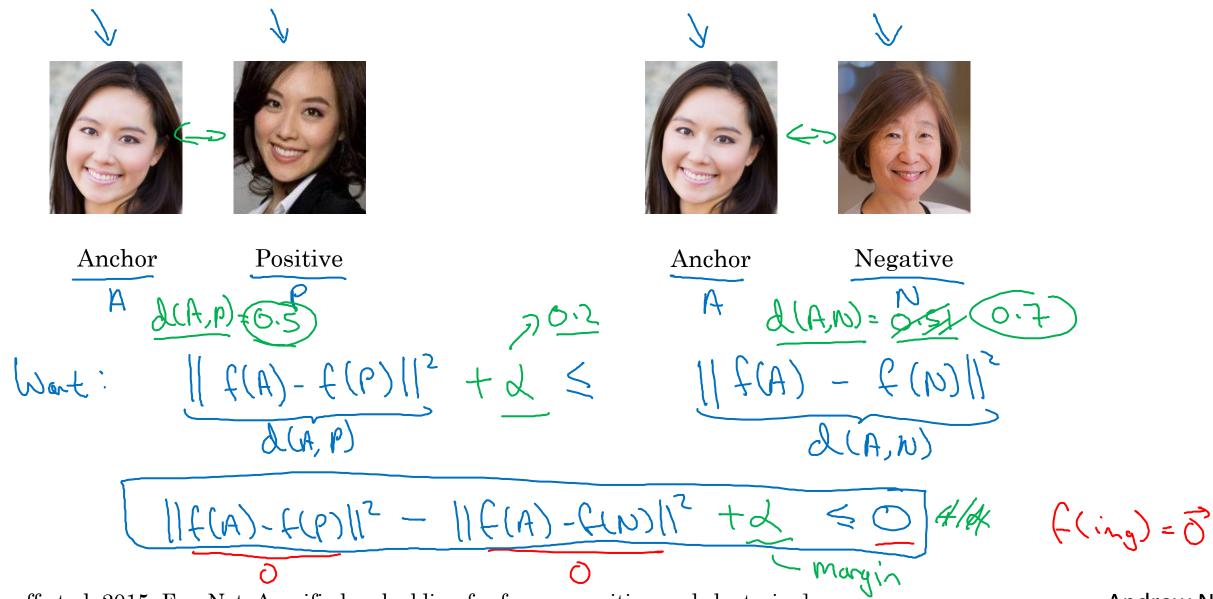


Face recognition

Triplet loss

Learning Objective



[Schroff et al.,2015, FaceNet: A unified embedding for face recognition and clustering]

Andrew Ng

Loss function

Griser 3 image
$$A.P.D$$
:
$$\frac{f(A,P,N)}{f(A)-f(P)||^2-||f(A)-f(N)||^2+d}, 0)$$

$$\frac{f(A,P,N)}{f(A)} = \max \left(\frac{||f(A)-f(P)||^2-||f(A)-f(N)||^2+d}{|f(A)-f(N)||^2+d}, 0\right)$$

$$\frac{f(A,P,N)}{f(A)} = \max \left(\frac{||f(A)-f(N)||^2-||f(A)-f(N)||^2+d}{|f(A)-f(N)||^2+d}, 0\right)$$

$$\frac{f(A,P,N)}{f(A)} = \min \left(\frac{f(A)-f(N)}{f(A)-f(N)}, 0\right)$$

Training set: 10k pictures of 1k persons

Choosing the triplets A,P,N

During training, if A,P,N are chosen randomly, $d(A,P) + \alpha \le d(A,N)$ is easily satisfied. $\|f(A) - f(P)\|^2 + \alpha \le \|f(A) - f(N)\|^2$

Choose triplets that're "hard" to train on.

$$A(A,P)$$
 +2 $A(A,N)$
 $A(A,P)$ $A(A,N)$
 $A(A,N)$



Training set using triplet loss

