deeplearning.ai

Face recognition

Siamese network

The job of function d which you learned about last video is to input two faces and tell you how similar or how different they are, a good way to this is to use a Siamese Network.

Siamese network

So it's taken the input image and is representing it as a vector of 128 numbers.

$x^{(1)}$

"encoding of $x^{(1)}$"

128

$f(x^{(1)})$

128

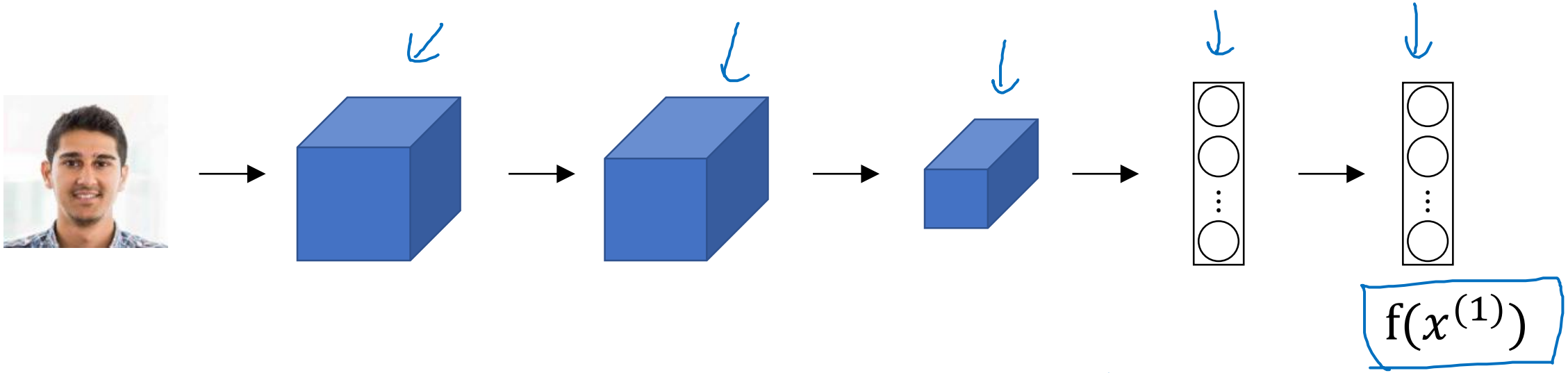
$x^{(2)}$

$f(x^{(2)})$

$$d(x^{(1)}, x^{(2)}) = \| f(x^{(1)}) - f(x^{(2)}) \|_2^2$$

[Taigman et. al., 2014. DeepFace closing the gap to human level performance]

Goal of learning



Parameters of NN define an encoding $f(x^{(i)})$ 128

Learn parameters so that:

If $x^{(i)}, x^{(j)}$ are the same person, $\left\|f(x^{(i)}) - f(x^{(j)})\right\|^2$ is small.

If $x^{(i)}, x^{(j)}$ are different persons, $\left\|f(x^{(i)}) - f(x^{(j)})\right\|^2$ is large.

And what you can do is use back propagation to vary all those parameters in order to make sure these conditions are satisfied.