deeplearning.ai

Face recognition

Siamese network

Siamese network

128

"encoding of $x^{(1)}$" ← $f(x^{(1)})$
↓ 128

$x^{(1)}$

$x^{(2)}$

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

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

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

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Goal of learning

$$\mathrm{f}(x^{(1)})$$
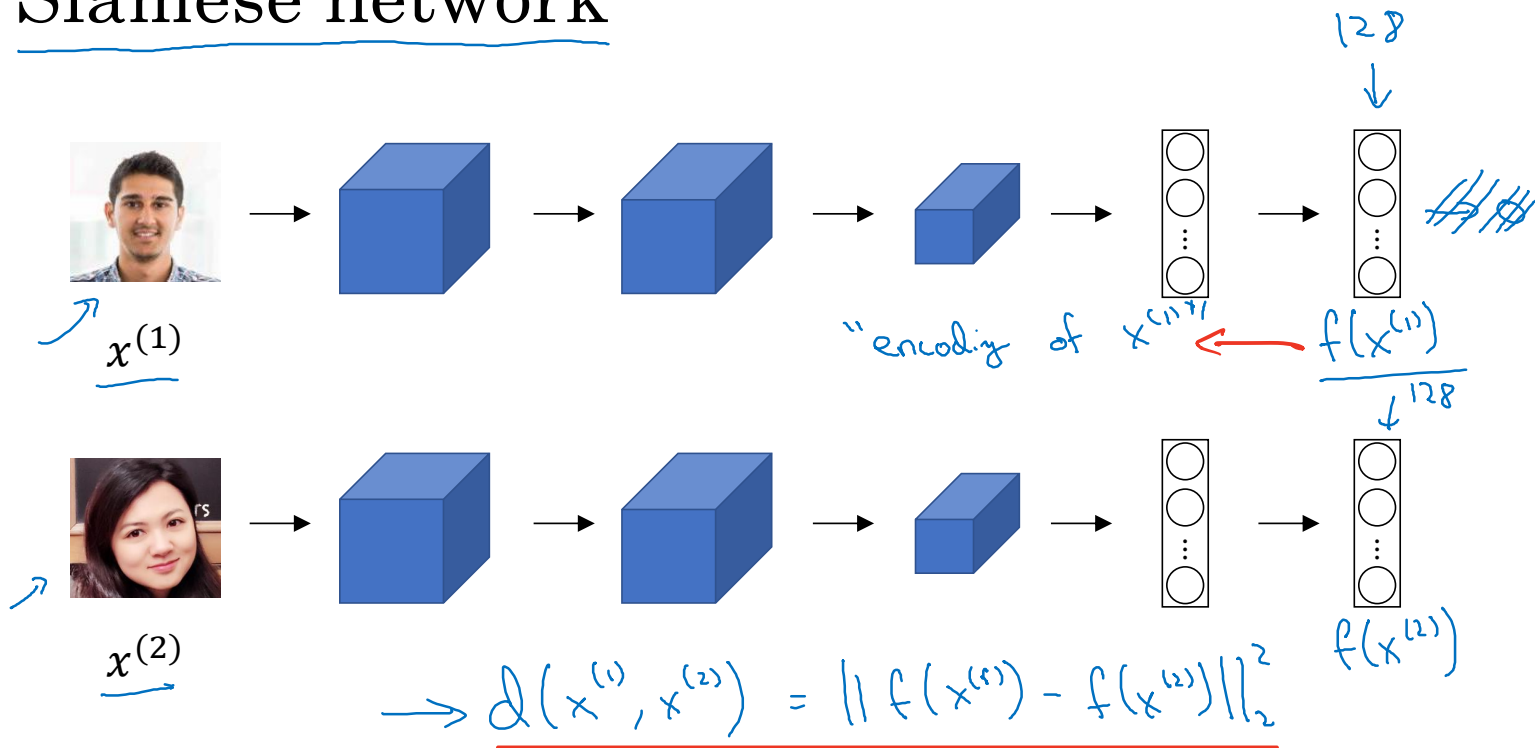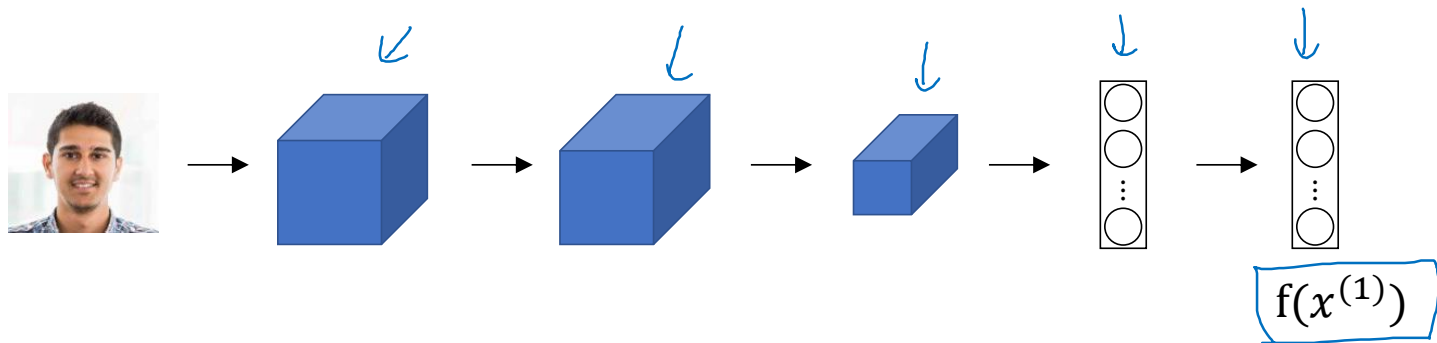
Parameters of NN define an encoding $f(x^{(i)})$ — 128

Learn parameters so that:

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

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