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Siamese Networks

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Lecture Notes (Optional)

Practice Quiz

Assignment: Question Duplicates

Acknowledgments

Cost Function

Take a close look at the following slide:

How old are you? Anchor
$$\cos(v_1,v_2) = \frac{v_1 \cdot v_2}{||v_1|| \, ||v_2||}$$

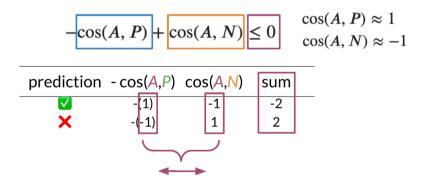
What is your age? Positive $\cos(A,P) \approx 1$

Where are you from? Negative $\cos(A,N) \approx -1$
 $-\cos(A,P) + \cos(A,N) \leq 0$

Note that when trying to compute the cost for a siamese network you use the triplet loss. The triplet loss looks at an Anchor, a Positive and a Negative example It's important to note that you aim to adjust the model's weights in a way that the anchor and the positive example have a cosine similarity score close to 1. Conversely, the anchor and the negative example should have a cosine similarity score close to -1. More concretely, you seek to minimize the following equation: n:

$$-\cos(A,P) + \cos(A,N) \le 0$$

Note that if $\cos(A, P) = 1$ and $\cos(A, N) = -1$, then the equation is definitely less than 0. However, as cos(A,P) deviates from 1 and cos(A,N) deviates from -1, then you can end up getting a cost that is > 0. Here is a visualization that would help you understand what is going on. Feel free to play with different numbers.



Mark as completed









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