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| Assignment 5 | |
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# Part A

## Summary

## Results

# Part B

## Summary

Part B of Assignment07 involved studying the Siamese Network using the one-shot learning approach, detailed in <https://www.cs.cmu.edu/~rsalakhu/papers/oneshot1.pdf>. This approach was then compared to the contrastive loss function.

The goal of this study was to answer the following:

Can both loss functions be combined to make a better verification network?

## Results

The one-shot learning loss function is:

The contrastive loss function is:

The prediction vector term, p, in compares to the distance term, Dw, in .

The objective of one-shot learning is to drive similar samples to predict 1, while driving dissimilar samples to predict 0. This differs from Contrastive loss, which has the objective of embedding similar inputs close together while embedding dissimilar inputs further apart in a reduced dimensional space.

The loss function could be combined to make a better verification network. The two models could be combined in series such that the embeddings from a trained Contrastive Loss Model are used as the inputs to a one-shot learning model. This approach would allow the one-shot learning model to differentiate on the key features embedded by the Contrastive Loss model.

# Part C