GMDL HW6

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**Computer Exercise 2:**

Chart, scatter chart

Description automatically generated

Figure

**Computer Exercise 4:**

Chart, scatter chart

Description automatically generated

Figure

**Computer Exercise 5:**

Chart, scatter chart

Description automatically generated

Figure

A loss graph during both autoencoder learning process, we can see that the loss is reducing during the iterations:

Chart, line chart

Description automatically generated

Figure

**Problem 1:**

Chart, scatter chart

Description automatically generatedChart, scatter chart

Description automatically generated

Figure - Figure 1 flipped along the Y axis, compared to Figure 3

As we can See from Figure 5; Figure 1 (filliped and on the left) and figure 3 (on the right) are distributed similarly. Mostly, the orientation and the scale are different, but both methods converged to a similar local minimum. Both models in Computer Exercise 2 and 5 are linear. Also, we chose the MSE loss function in the autoencoder. It has the same argmin as the Frobenius norm argmin that PCA converge to.

In the non-linear autoencoder in Computer Exercise 4 (that performs ReLU between each layer) we received substantial change to the convergence point of the model, as it is not linear anymore and in results, now have a different local minimum.