

1. Theoretical Tasks

In this exercise we will focus on visualizing and understanding what the Convolutional Neural Networks we have discussed in the previous weeks are doing under the hood. Watch the following presentation on t-SNE, and answer the questions below:

- <https://www.youtube.com/watch?v=RJVL80Gg3lA>

- 1) What are the advantages of t-SNE over PCA?
- 2) Consider three points a , b and c in the high-dimensional space. Let us assume that a and b are very close to each other, and that c is very far away from both of them. How would the loss behave if the following is true for the low-dimensional space? Feel free to use dummy numbers to support your answer.
 - a , b and c are all close to each other.
 - a and b are close to each other, and c is far away from them.
 - a , b and c are all far away from each other.
 - a is far away from both b and c , that are close to each other.