UNIVERSITÀ DEGLI STUDI DI PADOVA

Homework #2
Unupervised Deep Learning

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Neural Networks and Deep Learning - Professor: A. Testolin

Abstract—As for the second homework, the main models of Unupervised Deep Learning are investigated on the FashionMNIST dataset.
Firstly, an Autoencoder has been developed and its Encoded Space has been inspected. Later, the trained Autoencoder has been fine tuned aiming for a working Classifier.
As for the last model, a Generative Adversarial Network has been implemented for the task of generating new samples.
All these models were properly tuned using the Hyperparameter optimization library Optuna.

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I. AUTOENCODERS

A. *Methods*

B. *Results*

II. GENERATIVE ADVERSARIAL NETWORKS

A. *Methods*

B. *Results*

III. CONCLUSIONS

IV. Appendix