

Generative Models: Implementation of the NICE

Ofek Kirshenboim

Decemnr 2024

Results of NICE Application

This file presents the results of applying the methods from the article *NICE: Non-linear Independent Components Estimation*. The outcomes are shown through the loss on the training and test sets, as well as the generated images.

The implementation includes two variations: additive and adaptive coupling, which were tested on two datasets: MNIST and Fashion-MNIST. Consequently, the results are organized into four categories:

- MNIST with additive coupling
- MNIST with adaptive coupling
- Fashion-MNIST with additive coupling
- Fashion-MNIST with adaptive coupling

Due to resource constraints, the default parameters were used for all experiments.

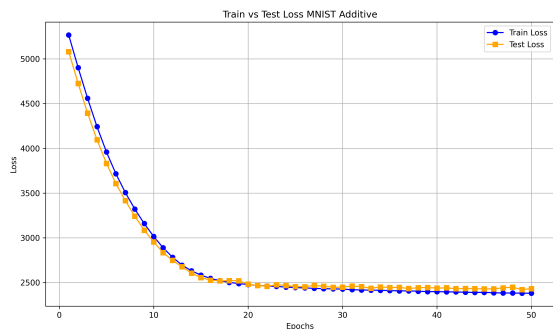


Fig. 1: Train and Test Log-Likelihood with Additive Coupling MNIST

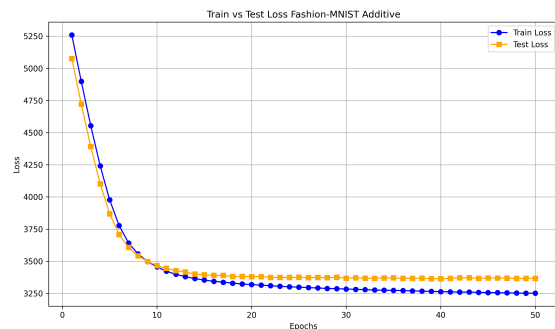


Fig. 2: Train and Test Log-Likelihood with Additive Coupling Fashion-MNIST

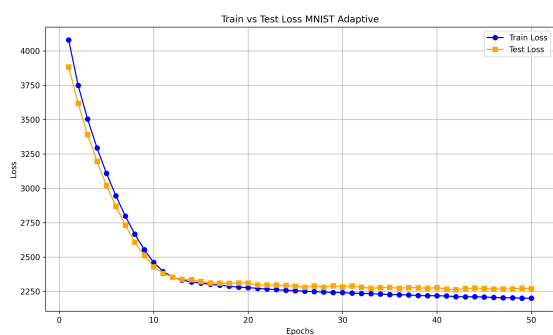


Fig. 3: Train and Test Log-Likelihood with Affine Coupling MNIST

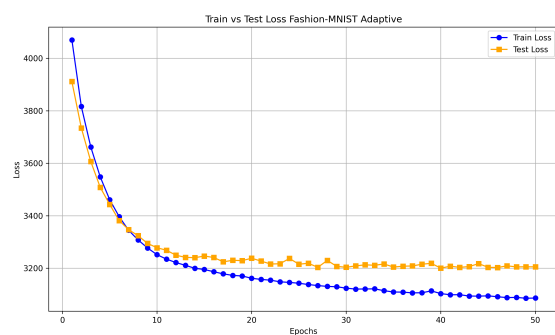


Fig. 4: Train and Test Log-Likelihood with Affine Coupling Fashion-MNIST

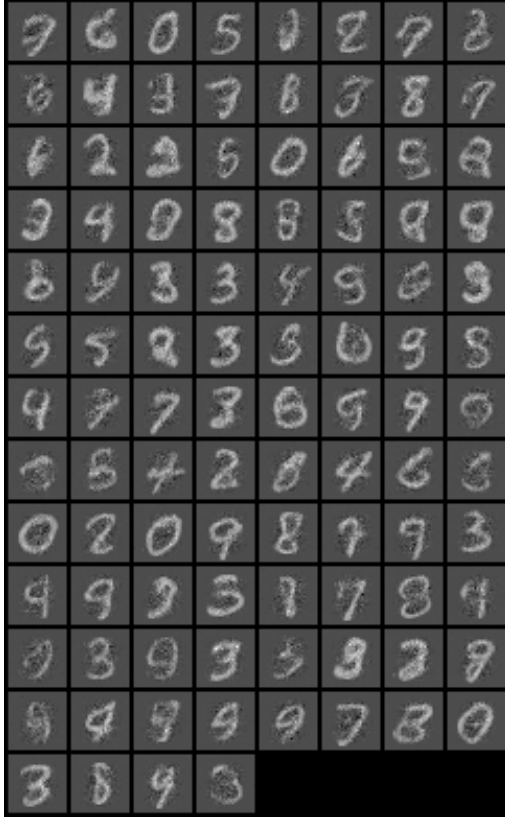


Fig. 5: Generated Images with Additive Coupling MNIST

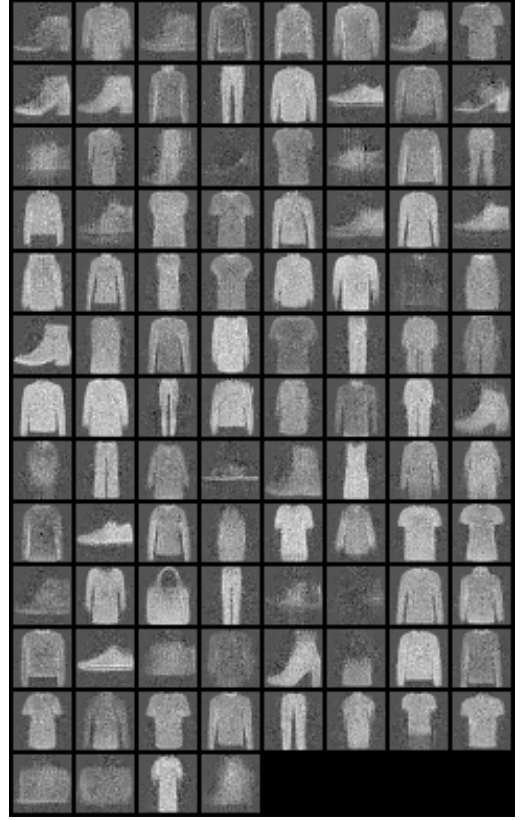


Fig. 6: Generated Images with Additive Coupling Fashion-MNIST

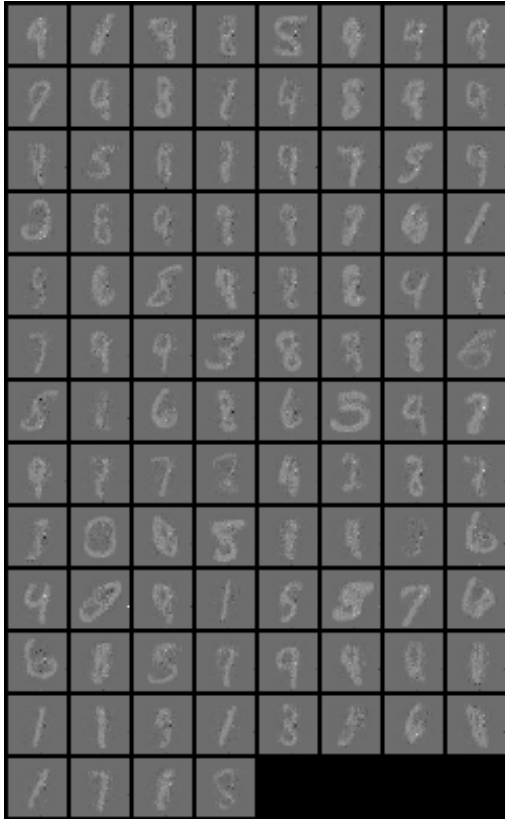


Fig. 7: Generated Images with Affine Coupling MNIST

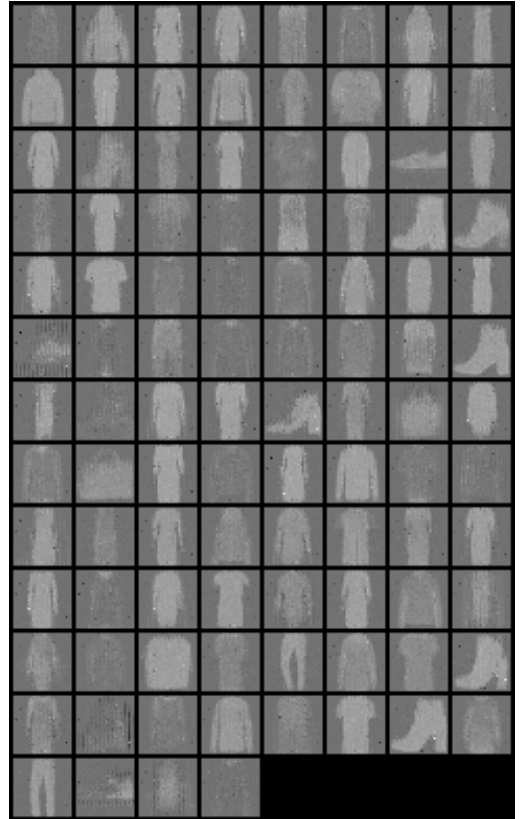


Fig. 8: Generated Images with Affine Coupling Fashion-MNIST