

Homework 7: Deep Learning

Out June 13; Due June 19, 12 a.m.

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Autoencoders

We have discussed during the last lecture that Autoencoders (AEs) can be used to obtain embeddings.

The goal of this homework is to implement AEs using deep learning frameworks such as TensorFlow, PyTorch and MXNet.

We use MNIST again for this homework, that is, inputs are gray-scale (single channel) images.

- 1) Implement an Autoencoder, you decide the number and size of your layers.
- 2) Generate new images of numbers, by feeding new codes into your AE decoder.
- 3) Implement a Variational Autoencoder (VAE), you decide the number and size of your layers.
- 4) Generate new images of numbers, by feeding new codes into your VAE decoder.
- (5) Please submit your notebook file that shows:
 - Some generated examples from the AE and VAE.
 - Discussion of the differences between AE and VAE.