**Deep Learning and Generative Models**

**Project assignment #2**

**Project objective**:

* Build a framework that, given two images A, B containing digits, tells the relation between the two digits *i.e.* outputs whether A > B, B > A or A = B.

**Dataset**:

* MNIST

**Network model**:

* It is recommended to use and conveniently modify the LeNet-5 architecture, although any other suitable CNN architecture can be used.

**Detailed information**:

* Use MNIST to build a custom dataset with relation labels (greater, smaller, equal) associated to the digit pairs.
* Many different solutions are possible. Two options are:
  1. Modify the CNN to receive as input two images and train it as 3-way classifier;
  2. Train the CNN as digit classifier and use it as feature extractor to compare 2 latent vectors corresponding to two digits by training a simple MLP.

**Additional notes**:

* Two images can be concatenated in the channel dimension to form a single tensor