Programming software

This project will be implemented using ***PyTorch***, an open-source library for machine learning and deep learning, based on the Torch library. It will operate on my personal machine with a CUDA-capable Nvidia GPU, for the purpose of Tensor computing. A couple of libraries will be used for useful functions: *TorchVision*, *scikit-learn* and *matplotlib*.

Used features

The ML techniques to be used will focus on image classification, namely a **multilayer perceptron** (MLP) and a **convolutional neural network** (CNN). The aforementioned libraries provide ample functionality and support for implementation of said networks.

Torch library has general features for neural network based functions, optimizers for updating NN parameters and util functions for handling datasets.

The TorchVision package will provide support for loading datasets and data augmentation. It contains utility functions for processing images so that they can be fed into neural networks. It also houses popular image datasets, deep CNN model architectures along with pretrained models.

Libraries scikit-learn and matplotlib are helpful for visualizing and, respectively, plotting the obtained results and learning process (visualization of confusion matrices for classification).