AI R&D Coding Assignment: Land Cover Classification using CNN

Figure 1: Example images from EuroSAT dataset.

The aim of this exercise to train a convolutional neural network (CNN) for the classification of EuroSAT images.

EuroSAT dataset [1]:

- Contains Sentinel-2 satellite images.
- 10 classes with in total 27,000 labeled RGB images.
- The size of images is 64x64x3.
- The images in the dataset belong to one of ten classes: 1) Annual Crop 2) Forest 3) Herbaceous Vegetation 4) Highway 5) Industrial 6) Pasture 7) Permanent Crop 8) Residential 9) River 10) Sea/Lake.

Your task:

- Download the Python scripts and data.[1]
- Complete the scripts to be able to train a network.

[1] https://drive.google.com/file/d/1kIjDeLCx6PvmyXOwwkEuSqTXm6u5oRH1/view?usp=sharing

- Ideally, the aim is to achieve 90% accuracy (on the test set) for the EuroSAT dataset. Once you achieve 90% accuracy (consistently), you don‘t need to continue improving results. There is not a single correct answer for this. There are many combinations of architecture and training parameters that can achieve 90% accuracy.

Submit the following in a single zip file:

- Your code describing the network architecture (network.py) and for training the network (coding_assignment.ipynb).
- The output curves for loss and accuracy for a single run.
- Note that even if you can not achieve 90% accuracy you can still submit your result.

References

[1] P. Helber, B. Bischke, A. Dengel, and D. Borth, “Eurosat: A novel dataset and deep learning benchmark for land use and land cover classification,” *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 12, no. 7, pp. 2217–2226, 2019.