Professional Program in AI, June 2019

Indian Institute of Technology Hyderabad

Lab: Convolutional Neural Networks

I. In this assignment you will build *multi-layer perceptron* for image classification task. Use the MNIST database and *Keras (a deep learning library) for the implementation.* The steps for implementing your classifier are outlined below. Also report the *accuracy* of your classifier at the end of the each epoch and comment on *over-fitting*.

   1. Import required libraries
   2. Load MNIST data
   3. Designing the model.
   4. Compailing the model.
   5. Train and test the model.

II. Solve the above problem statement using *convolutional neural network (CNN).* Report the *accuracy* of your classifier at the end of the each epoch and comment on *over-fitting*

III. In this assignment use *dropout* as regularizer for the above model and comment on *over-fitting?*. Save and re-load the model for future use.

IV. Tour to Keras documentation:

   1. Usage of the state-of-the-art pretrained models.
   2. Intro to transfer learning.
   3. Other popular vision tasks.