Algorithms: Assignment #5

Open Source SW Project (Deep Learning)

13601-01/02

Prof. Eunwoo Kim

Due: 13 June 2021

This is an open source SW project which makes use of open source libraries to conduct a required task. In this project, we perform an advanced AI method, namely deep learning, in order to address a simple hand-written digit classification problem. Your tasks are described below, and we offer relevant materials and resources for your success. This project is intended to give you an experience of recently emerged AI and deep learning and will make you roughly grasp how the approach works. This can be performed in your local machine.

[10 pts] Your tasks are based on Anaconda, Jupyter Notebook, TensorFlow, and Github (open source libraries):

- ✓ Create your Github page.
- ✓ Install Anaconda and TensorFlow.
- ✓ Run the provided code in Jupyter Notebook for three different convolutional neural networks (CNNs) for the popular classification dataset, MNIST, on your machine.
- ✓ Upload the source code and the classification results (accuracies) into the Github.
- ✓ Upload success/failure cases (images) of your results into the Github.
- ✓ Give your Github address on the e-class Assignments section.

Evaluation is based on the codes and the results uploaded in your Github page.

What will be provided as supplementary materials (a single pdf file is provided):

- ✓ Brief introduction to OSS (Open Source SW).
- ✓ How to install/use Anaconda, TensorFlow (CPU version), and Jupyter Notebook.
- ✓ How to create personal Github page and upload codes & results.
- ✓ Introduction to classification & deep learning basics.
- ✓ Datasets: MNIST (handwritten digit dataset).
- ✓ Project description (with demo video).

References:

1. Simonyan and Zisserman, “Very Deep Convolutional Networks for Large-Scale Image Recognition”, 2014.
2. Lecun et al., “Gradient-Based Learning Applied to Document Recognition”, Proceedings of the IEEE, 1998.

Please contact TAs if you have something to ask: Gyeonghyeon Kim (leonardkkh@cau.ac.kr) / Jiho Lee (j2hoooo@cau.ac.kr)