Deep Learning Winter School for Computer Vision 2020

Assignment 1

28 January 2020

Instructions- Answer the following questions in a pdf file. For question 3, include the code in the pdf file and the sharable link of Google Colab (with only view option).
Name of the pdf file should be your *Familyname_Firstname*.pdf. Submit the assignment before 2/Feb/2020, 23:59 PM at srijan.das@inria.fr with subject - **DLWSC - 2020 Assignment 1**.

1. What is the difference between statefll and stateless LSTM?
2. Differentiate between a single LSTM layer of 100 neurons and a stacked 2-layered LSTM each of 50 neurons?
3. The problem we are going to look at in this post is the International Airline Passengers prediction problem. This is a problem where, given a year and a month, the task is to predict the number of international airline passengers in units of 1,000. The data ranges from January 1949 to December 1960, or 12 years, with 144 observations. Download the data from airline-passengers.csv. Split the data into $(2/3)^{rd}$ for training and the rest for testing.

   We can phrase the problem as a regression problem. That is, given the number of passengers (in units of thousands) this month, what is the number of passengers next month? Implement the best possible Neural Network for this problem.
   Use the below code snippet to load the dataset.

```
# load the dataset
dataframe = pandas.read_csv('airline-passengers.csv', usecols=[1],
    engine='python')
dataset = dataframe.values
dataset = dataset.astype('float32')
```