

# COMP7606\_DASC7606 Deep Learning

## Assignment 1

**Due Date: 5 pm., April 1, 2019**

In order to better understand Recurrent Neural Network (RNN) and get familiar with TensorFlow, this assignment aims to train a Recurrent Neural Network (RNN) implemented using TensorFlow.

### You will be given:

1. The training data set: [data.txt](#)
2. The initial TensorFlow code, which you are expected to modify: [RNN\\_Sample.py](#)

### The training data set:

The training set contains 5000 examples. Each example comprises a number A in binary form, a number B in binary form, and a number C in binary form, where  $C = f(A, B)$  for 98% of the time, for an unknown function  $f$  which the RNN is expected to approximate. For the remaining 2% of the time an error has been introduced into C making  $C \neq f(A, B)$ .

### The initial TensorFlow code:

The initial code does not give a good approximation of  $f$ . What you need to do is to make changes to the code to improve the performance, i.e. the prediction accuracy of this model. Try to use the various techniques described in class to improve the performance, documenting and explaining the results (in a README file).

### You should submit:

1. Your code of your improved model (.py or .ipynb).
2. A README file explaining the changes/improvements that you made.

*\* Please submit all of these in one ZIP file to Moodle **on or before 5 pm, April 1, 2019**. Make sure all contents are readable.*

### Marking scheme:

1. **Performance:** We will test your code on test data and score your code on the accuracy obtained. (60%)
2. **Effort:** We will consider the number of different techniques you have tried, out of a checklist of possibilities. (20%)
3. **Presentation:** We will assess the quality of your explanation of the changes/improvements that you made. For example, we will ask ourselves whether this student really understand the techniques he/she applied and how it improved the model's performance. (20%)