**Assignment CMPUT811**

**Goal**

To explore deep learning via hands on exercise. To try out deep learning on a new dataset.

**Overview**

* you will pose a deep learning solution for another problem
* you will import or generate data for that problem
* you will try 3 different deep learning architectures on your problem
* you will write a short report about your endeavour.
* you will commit both the report and the source code to a git repository
* you will host that repository on github
* you will share with the instructor the URI of that github repo e.g. <https://github.com/abramhindle/theanets-tutorial>

**Deliverables**

* 1 Github Repo URI that contains within it
  + 1 derivative program that imports your data set and sets up a deep learning network to train, validate, and test on your dataset.
    - your program will explore 3 different architectures
      * each architecture should differ in the number of layers and in the number of neurons
  + 1 sample dataset if it is less than 100mb
    - or the script to generate it
  + 1 PDF or Markdown Report
    - 1 description of your data set
      * include source code if you generate it
      * instructions how to get the dataset or generate it
    - 1 description of your problem
    - 1 description of you condition your inputs
    - 1 description of your interpret your outputs
    - 1 description of performance of each architecture on the deep learning task. Describe accuracy and TP, TN, FP, FN.
    - 1 discussion whereby you suggest possible ways of improving the result
    - 1 summary

**Rubric**

10 marks:

* 20% Dataset generation / import
* 50% Project Report
* 30% Program

Each component is rated as Unsatisfactory, Poor, Satisfactory, Good, Excellent.

**Clarifications**

* If you have more than 4 pages then you're probably writing way too much.
* I expect about 1-2 pages.
* You can modify my data-generators. But it has to be distinct and different.
* You are free to use other source code as long as the licenses are compatible and you have permission and you can cite it.
* The deliverable will be in a github repo
* The only text you submit will be the url to your github repository
* You github repo will contain your source code and report
* You may fork the theanets-tutorial from <https://github.com/abramhindle/theanets-tutorial>
* You will cite all sources -- for code and for writing.