COMP596 – Brain-inspired AI
Take-home final
April 7th, 2020

Due on MyCourses, 12PM, Friday, April 10th, 2020

Instructions

For your take home final, you must write a **1-page mini-essay** addressing the following questions:

- Pick some human behaviour that current AI is **incapable** of doing (to the best of your knowledge). It can be very high-level and cognitive, or low-level, whatever you like.
- Describe that behaviour at a **computational level**. What must be computed for this behaviour to happen? *Example*: to catch a fly ball in baseball you must compute how to position your body at the drop point of the ball's arc.
- *Speculate* as to how you may be able to implement that behaviour at an **algorithmic level** using an artificial neural network. This can be very high level. *Example*: to position your body at the drop point of a fly ball you can move so as to keep the ball moving straight horizontally and at a constant velocity vertically.
- Describe the **environment** (i.e. the dataset) that would be required to train your proposed ANN. *Example*: a 3D simulation of an agent moving in a baseball field.

Marking scheme

- The marks will be out of 10.
- You will be marked principally for the **clarity** of your ideas. If the TA and I can easily identify (1) the unique human capability you are discussing, (2) what you believe must be computed for it to occur, (3) the algorithm you are proposing, and (4) the environment you are proposing, you will get a good mark.
- You will not be marked on the "correctness" of your answers, *per se*. It's okay if you propose something that AI can actually do and you just didn't know it, or if you propose an algorithm that is totally unlike what we know in neuroscience. **The goal of this take-home is to make sure you can discuss intelligent behaviours in machines using the terminology you learned in class and in a cogent manner.**