

**IE534/CS547: Deep Learning**

**(Due: Feb-21-2021)**

## Homework #3

*Instructor:* Richard B. Sowers

Read all the instructions below carefully before you start working on the assignment, and before you make a submission.

- **This is a group homework, every group only submit ONE solution on Compass .** Please include the names of all the group members.
- **Due time is at 11:59pm** at the due date. **No late submission!**
- All students are expected to abide by the Honor Code
- All date-times will be in Champaign-Urbana
- Please put your typed solution in a PDF format. For code, you can either submit it in .py file or jupyter notebook file also with its google colab shared link in your solution PDF file.

### **Problem 1: TruthTable**

(10 points)

The representations of the various truth tables in the lectures are not unique. Find 5 alternate representations (total) of truth tables in the lectures. Acceptable alternate representations will involve

- a modification where a weight matrix has different zero structure
- a modification where entries in a weight matrix have a different sign.