Undergraduate AI Capstone   NYCU Spr2023   Final Project (Group)   Due 6/16/2023

The objective of this assignment is for you to explore a topic related to artificial intelligence that is related to but somewhat beyond the scope of the class lectures.

This is a group project with 1-3 students per group. List the names and IDs of the group members in the first page of your report.

Task descriptions:
- Read and provide an overview of 3+ articles on one of topics listed below. You can include illustrations and text from the papers, but you should provide citations when doing so.
- Demo and experiments of techniques mentioned in at least one of the selected papers. You are allowed to utilize available library/toolbox functions and existing implementations, including those provided from your selected papers. You should clearly indicate the source. If you use existing codes, do not just run the programs. Do a few experiments, possibly with some minor modifications and/or different data/settings, and see what happens.
- Submit a written report (max. 10 pages) that
    1. Provides a background overview of the selected topic (not limited to your selected papers),
    2. Description of the selected papers,
    3. What demo/experiments you have done, and your findings,
    4. Discussion: Your thoughts on the selected papers, and the topic in general.
- Produce a video (max. 10 minutes) describing the contents in your report. Instead of submitting the video file directly, upload it to Google Drive or YouTube and include the link in the first page of your report.

Topics for you to choose from:
(The topics are pretty broad, and you are free to select one of their subtopics. It is best if your selected articles are all concerned with the same subtopic, so that your report is not too divergent. Ask the instructor if in doubt.)
- AI techniques for real-time strategy games
- AI techniques for car racing games
- AI techniques for incomplete-information board/card games
- Multi-objective optimization with evolutionary computation
- Neural architecture search
- Unsupervised learning for data visualization (e.g., t-SNE)
- Machine learning for image denoising
- Clustering for image segmentation
- Techniques for training classifiers with class-imbalanced data
- Solving classical computing problems (e.g., TSP, set cover, job scheduling, …) with ACO
- Applications and techniques of robotic swarms
- Classification of speech signals (e.g., speaker, emotion, gender, …)

To avoid delaying the decision on your final grades, this assignment will carry only a 3-day grace period.