CS 3793/5233 – Artificial Intelligence
Group Research Project

Overview

- Total 250 points = 25% of grade
- Groups of 4-5 students with one Graduate student leading the group (recommended)
- Topic
    - Any AI research topic in recent AI-related conferences / journals (e.g., CVPR, ICCV, WACV, 3DV, NIPS, AAAI, IJCAI, ICIP, etc.).
      OR
    - Any AI challenges / competitions. Following are some places to find them:
        - https://www.kaggle.com/competitions
        - https://eval.ai/web/challenges/list
        - https://codalab.lisn.upsaclay.fr/
        - https://www.aicrowd.com/challenges
        - https://www.drivendata.org/competitions/
- Some examples of high-level research topics:
    - Body / Hand / Object pose estimation (2D or 3D)
    - Face / Smile / Emotion detection and recognition
    - Object detection and recognition
    - Sentiment analysis – reviews, news, messages, tweets, etc.
    - Fake images / videos – detection and generation
    - Medical image analysis
- The project work **does not** have to be of publishable quality. However, students are **highly encouraged** to utilize the time spent on this project as actual research. *You are encouraged to submit revised versions of these projects to research conferences or as white papers on arXiv*.

Project Timeline

Group & Topic – DUE: 06/30

- Decide the research topic (at least at a high level) and finalize the group.

Proposal – DUE: 07/07

- Conduct a brief literature search to understand the topic being solved.
- Create a **1-page** document describing the research problem for the project. You can divide the document into the following parts:
    - Problem Statement: Clearly state the research problem that is being addressed.
    - Methods: Conduct a quick literature search and list a few methods that will be explored. This does not have to be the final list or a detailed review.
    - (Optional) New Approach: If you are planning to come up with a novel idea, provide a rough outline of the research approach.

- Experimental Setup: Describe the experimental setup by listing which metrics and datasets will be used for evaluation.

Midterm Presentation – DUE: 07/17

- Each group must submit a PDF or PPT file (8 - 10 pages/slides).
- In your presentation you describe your project and clearly state the research problem that is being addressed.
- You also list the methods that you have explored to do the project. If you have come up with a novel idea, provide a rough outline of the research approach.
- You need to describe the experimental setup by listing the metrics and datasets you are using for evaluation.
- You should also explain about the challenges you have faced so far and how you plan to tackle them.

Final Presentation – DUE: 07/31

- Each group must submit a PDF or PPT file (8 - 10 pages/slides) and present their project during online class sessions (08/01 and 08/03).
- In your presentation You describe the research problem for your project.
- You also explain the method(s) that you have utilized to do the project. If you have come up with a novel idea, provide a rough outline of the research approach.
- You describe the datasets you used and explain the results of your model. You also explain the evaluation of your model based on metrics that you have used.
- You should also explain about the challenges you have faced and how you tackled them.