

# Final Project Description

## Final project- (team work) (Total: 25 points)

- Final project code, slides and poster are due on **Dec 10th, 2023, 10 PM, EST**.
- Each team is expected to present your final project in the class on Dec 11th. Each team will have 7.5 minutes.
- Each team please form two team members. **Each team please only submit one copy by one student.**

## Final project Option 1: GAN

Implement one type of GAN model. You may refer to some papers, or someone's source code, or design your own GAN model.

For examples: the PyTorch-GAN <https://github.com/eriklindernoren/PyTorch-GAN>,

or Keras-GAN <https://github.com/eriklindernoren/Keras-GAN>

Or GAN Zoo <https://github.com/hindupuravinash/the-gan-zoo>

Choose one of the GAN models, (read and understand their papers) and implement the model in detail. Compared with the source code, we require you to make at least **15% modifications**, either choose a different dataset, try new algorithms, or revise the GAN model (training) algorithms/parameters.

### Some key functions:

- generator
- discriminator
- training
- results

### In your submitted slides:

- **put your code link (not others)**, that can be implementable,
- describe some key functions, or main steps,
- paste some visualization results, for example, some pictures generated in the middle of training, finally generated images, for comparison.
- Share what you learned from this implementation, e.g. problem you met, and how you solve it.

## Final project Option 2:

Detect if some texts are generated by AI (e.g. ChatGPT) or human beings.

- If you use other's code, please specify the link.
- Make sure you have at least 30% difference.
- For the training dataset, you can download from website, but for the test dataset, please prepare by yourself.

## Final project Option 3: self-defined project

You can freely define your own project. If this is related to your research, can you utilize what you learned from this class, and design a new solution? If this is something you are interested in, can you build a new model and apply it to solve a new problem? This project can be related to NLP, images, videos, audio, visualization, time series, etc. The only requirement is that it should have some techniques related to what we learned in this class. If you are interested in ChatGPT, I strongly recommend you to try something related to ChatGPT or Large language model.

## Project Report Requirement: (report is due on 12/16/2023)

Please use ChatGPT to help you write your project report.

- [IEEE two-column style format](#), Times New Roman,
- Font: 10pt.
- Single space.
- At least 6 pages

The report should include:

- Authors (name, student ID, E-mail, and department)
- Abstract
- Introduction (including motivation, problem statement, significance of the problem)
- Related work
- Proposed approaches/method
- System design and implementation (such as architecture, datasets, major components, graphic user interface)
- Discussion / conclusions
- References

## Presentation Requirement:

In your final presentation,

- Present the model you choose, the design mechanism (you may refer to the paper if you choose option 1)
- Show the core source code (if you use other's code), and specify which parts are you revised, or contributed by your team
- Show the visualization results
- Summarize your team's contribution, compared with the original GAN model, or previous work. We encourage creativity and novelty.
- Specify each member's contribution
- Share with us what you learned from this project.

**Upload Requirement:**

- We expect you to upload slides, and project report. The source code can be a github link and added to your slides.
- Upload your file to Blackboard. File Name: (Member1-Name)\_(Member2-Name)\_slides/report