ECEN 649 Pattern Recognition – Fall 2024
Class Project

1. The class project aims to demonstrate your ability to formulate a nontrivial problem, solve it using pattern recognition and machine learning methods, and present your results in a scientific report format. The project is done in teams of at most two. If the project is based on your research (unpublished work), you must explain why the problem is relevant and give enough references to situate the problem in the current literature. Otherwise, you are supposed to select data sets from relevant papers in the literature and propose new experiments, which complement, extend or clarify the results in those papers.

2. The project consists of the following deliverables.

    - **Proposal:** 0.5-1 page, 25%, **due Nov 4**.
    - **Checkpoint:** 3-5 pages, 25%, **due Dec 2**.
    - **Final Report:** 5-8 pages, 50%, **due Dec 9**.

3. The proposal should contain:

    - Project title and team.
    - Project description. Describe briefly the goal of the project, the data set, and the pattern recognition techniques to be used (e.g., data cleaning, data visualization/exploration, feature selection/extraction, classification/regression method, model selection, error estimation).
    - References: these are the papers where the experiments were originally published or that support the methodology you will use in your paper. At least 2 papers should be included.

4. The checkpoint report is a preliminary report. It should have the Methods section almost complete, and must contain at least some experimental results.

5. The final report will look like a conference paper, with abstract, introduction, related work, methods, results, and conclusion. It should contain between 5 and 8 pages. Both checkpoint and final reports must use the NeurIPS latex style, accessible at https://neurips.cc/Conferences/2023/PaperInformation/StyleFiles.

6. The project must use pattern recognition and machine learning methods. It cannot be based only on simulated data (but it may use it). The results in the project must be your own original work.

7. You may use a data set that has been published in a recent paper, a data set you produced in your research, or one of the data sets in the textbook (please see Appendix A8).

8. You are responsible for making sure you have adequate computing resources to run the necessary experiments and simulations. In most cases, you will be able to use your computer to do it.