CS 559: Machine Learning: Fundamentals and Applications
Assignment 4 Due: 11/4/2024 Tuesday 11:59 p.m.

- The assignment must be individual work and must not be copied or shared. Any tendency to cheat/copy evidence will lead to a 0 mark for the assignment.
- Students must only use Pandas, NumPy, Matplotlib, and Scipy if the problem does not specify libraries/packages.
- All codes will be tested in grading. Any codes with an error will be marked 0. Make sure to restart the kernel and run it all before the submission. Delete any codes that do not want to be graded.
- Results must be displayed.
- All problems must be submitted in a single notebook file. Do not use a text editor to write codes.

Non-parametric model selection [100 pts]

This assignment requires a report. Train the non-parametric models to predict each player's salary from the trained data sets in HW3. The models that will be used are neural networks, kNN, kernel ridge regression, and SVM. For each model you trained, present plots of the variance and bias trade-off, the efficiency (training time) of hyperparameters, the curse of dimensionality, etc., to make the best model selection. If the trained data is insufficient, students can re-train the data for better performance.

note: Use sklearn. Do not implement ML algorithms.

a. [60 points, 15 points each] Model training

b. [20 points] Visualization

c. [20 points] Report quality - clarification, justification, etc.