SUNY Albany

AMAT593 Spring 2024

Practical Methods in Machine Learning

Instructor: Felix Ye @Catskill 383

Lectures: TuTh 10:30-11:50AM, TuTh 1:30-2:50PM @ Humanities 032

Instructor Office Hours: Th 3:00-4:30PM @Catskill 383 or by appointment.

E-Mail Address: xye2@albany.edu
Email will be a major line of communication between the student and the instructor. I will send urgent announcements and important information via email. Please check your university email regularly.

Web Page: Check the course page in Brightspace regularly. Homework assignments, course announcements, and grades will be posted there.

Course Description:

This course is the final installment and capstone for the sequence of Machine Learning (MAT 590-593). The student will select a real-world data analysis project which can be effectively addressed by employing machine learning methods. It involves a principled data-analytical process including data preprocessing, the detailed design of the project, comparison of different machine learning methods, and critical analysis of the obtained results. The instructor will provide close guidance throughout the project.

All latest notebook can be downloaded in https://github.com/yexf308/PracticalML. I will keep updating this git repository as class progresses, so please fetch the update regularly. I will also leave a copy (not most updated) version in Brightspace.

Textbook:

Probabilistic Machine Learning by Kevin Murphy.

Grading Policy:

Homework 1	10%
Homework 2	15%
Homework 3	15%
Group project 1-3	60%

Incomplete grade: This class will not give any incomplete grade. If the work cannot complete in the current semester, the student can choose to retake this class in the following year.

Homework and Projects: Homework assignments will be assigned every two weeks in the first half of this course. There are 3 sets of homework in total. Late assignment turn-in is not permitted. Any assignment turned in after the deadline will NOT be graded.

In the second half of this course, there will be three group projects. Each project will be assigned every two weeks.

Attendance: Although attendance will not be taken, I strongly encourage you attend and participate in every lecture. This is one of the best ways to ensure success in the course.

Bonus point: Students are encouraged to present the homework and projects in the showcase day (Apr 30th). A successful presentation can count at most 10% to your total grade.

Academic Misconduct: The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition.

In addition, specific ethics guidelines for this course are as follows:

- Homeworks must be done individually: each student must hand in their own answers. In addition, each student must write their own code in the programming part of the assignment. It is acceptable, however, for students to collaborate in figuring out answers and helping each other solve the problems. If you copy and paste the code from chatGPT, Bard or etc, you will receive zero point as well.
- To be more precise, on every homework: list every person with whom you discussed any problem in any depth, and every reference (outside of our course slides, lectures, and textbook) that you used.
- You can spend an arbitrary amount of time discussing and working out a solution with your listed collaborators, but *do not take notes, photos, or other artifacts of your collaboration*. Erase the board you were working on, and once you're alone, write up your answers yourself. This means that word-for-word phrases shared between homeworks will leave us with a high degree of suspicion that the whiteboard policy was not followed, and similarly

high degrees of similarity between programming assignments. We do scan for the latter programmatically, and the former manually.

- The homework problems have been carefully chosen for their pedagogical value and hence might be similar or identical to those given out in past offerings of this course at SUNY Albany, or similar courses at other schools. Using any pre-existing solutions from these sources, from the Web or other textbooks constitues a violation of the academic integrity expected of you and is strictly prohibited.

If you are caught copying and pasting someone else's code the following penalty system will apply:

- For the first offense, a zero for the question that you copied on.
- For the second offense, a zero for the assignment and I file a Violation of Academic Integrity Report (VAIR).
- For the third or later offense, you get a letter grade reduction (or possibly fail) and I refer you to community standards, which could result in expulsion from UAlbany.