I1900 Pattern Recognition and Machine Learning

Spring 2014 - Hanghang Tong

Course Information

This course is centered around pattern recognition and machine learning algorithms, applications, and theory. We will cover a variety of topics including supervised and unsupervised learning, dimensionality reduction, etc. At the end of the course, the students are expected to flexibly apply the learnt machine learning techniques to construct and select models. They should also be able to adapt an existing approach to accommodate the specific properties of a given problem.

- Instructor: Hanghang Tong (tong at ccny dot cuny dot edu)
    - NA 8230, x6162
    - Office hour:
- Class meets: Wednesday 4:50-7:20pm, NA-4148
- Grading
    - Class participation: 10%
    - Mid-term 1: 25%
    - Mid-term 2: 25%
    - Class Project: 40%
- Late policy:
    - each person has 2 slip days in total for the whole semester. After that, 20% deduction per day of delay
    - no penalty if medical emergence (need doctor's notes)

Schedule (subject to change)

Lecture	Date	Topics	Remarks
1	*Jan 29*	Introduction + Basic Concepts + Over fitting	
2	Feb 5	Bayes Classifier, KNN, Candidate Project	
3	Feb 12	**College Closed (Lincoln's Birthday)**	
4	Feb 19	Linear Regression, Logistic Regression	
5	Feb 26	SVMs and other Classifiers (Adaboost)	
6	Mar 5	**Midterm Exam-1**	
7	Mar 12	*Kmeans, GMM, EM*	
8	Mar 19	Spectral Clustering, Co-clustering	
9	Mar 26	Dimensionality Reduction (SVD, PCA, LSH)	
10	**Apr 2**	**Midterm exam-2**	
11	Apr 9	Time Series – 1	
12	Apr 16	Time Series – 2 (HMM, Kalman Filter)	

13	Apr 23	Learning and Mining with Graphs 1 (Graphical Model)	
14	Apr 30	Learning and Mining with Graphs 2 (Matrix Tools)	
15	May 7	Learning and Mining with Graphs 3 (Dynamic Process)	
16	**May 14**	**Last Class, project presentation**	