Lecture schedule

Updated January 15, 2019

The tentative lecture schedule for the semester is to discuss material from the course notes. The chapters will be followed in order with the following exceptions: material from Chapter 3 (minima, convexity, strong convexity, smoothness) and Chapter 4 (functions determined by kernels) will be discussed as needed for later chapters. Only selections from Chapters 10-12 will be discussed.

Tu 1/15 Course mechanics, main goals of learning, examine the programming problem (last problem) for problem set 1. (It is about the Iris flower data set and performance of the K Nearest Neighbor classifier. It demonstrates role of training data and test data for supervised learning.) Quick run through Chapter 1, focusing on a sequence of independent tosses of a biased coin. Three distinct problems discussed: estimation, prediction, and learning.

Th 1/19 Chapter 5, Sections 1 and 2 of course notes. Concept learning in the realizable case, PAC learnability. PAC learnability for the axis parallel rectangles example.

F 1/20 (optional recitation session) – discussion of Theorem 5.1 in the course notes – realizable concept learning with finitely many hypotheses are PAC learnable. Also, possibly Section 3.3 (convex functions) and Appendix A (especially Jensen’s inequality).

Tu 1/22 Concentration inequalities, Chapter 2 of course notes

Th 1/24 Finish up concentration inequalities. A converse result (aka no free lunch theorem), realizable case (This is a problem in Problem set 1. A variation may be found in Chapter 5 of Understanding Machine Learning.)

F 1/25 (optional recitation session) – examples using concentration inequalities

Tu 1/29 Formulation of the learning problem, continued (function estimation, agnostic case) See Chapter 5, Sections 3 and 4 of the course notes.

Th 1/31 Chapter 6: Empirical Risk Minimization and Rademacher averages (to be continued)

F 2/1 (optional recitation session) Review of problems from problem set 1 ???

Tu 2/5 Chapter 6: More on Empirical Risk Minimization and Rademacher averages, and start on Chapter 7, VC dimension

Th 2/7 and F 2/8 – No lecture or recitation due to CSL Student Conference

Tu 2/12 Chapter 7 continued, on VC dimension, ending with the fundamental theorem of concept learning

Th 2/14

F 2/15 (optional recitation session) TBD

Tu 2/19

Th 2/21

F 2/22 (optional recitation session)

F 2/22/19 (optional recitation session) TBD

Tu 2/26

Th 2/28

F 3/1 (optional recitation session) Review for exam 1???

Tu 3/5

W 3/4 EXAM 1, 7-9 pm, 2013 ECEB
Th 3/6
F 3/7 (optional recitation session) TBD