9.520/6.860: Statistical Learning Theory and Applications

Class: Mon., Wed. 1:00 - 2:30 pm, 46-3310 (Picower seminar room)
Office Hours: Fr. 2:00 - 3:00 pm, 46-5156 (Poggio Lab lounge)

Web: http://www.mit.edu/~9.520/

Contact: 9.520@mit.edu

Mailing list: 9.520students@mit.edu

Notes:

● 9.520/6.860 is currently NOT using the Stellar system
● Register to 9.520/6.860 by filing online registration form
● Mailing list and web are the place to look for course material
● Fall 2015 lecture videos are online
Course Notes/Book (draft)


Ch. 1 - Statistical Learning Theory (Class 3)
Ch. 2 - Consistency, Learnability and Regularization (Class 3, 19, 20)
Ch. 3 - Hypothesis Spaces (Class 4, 5, 6)
Ch. 4 - Regularization Networks (Class 7, 8, 10)
Ch. 5 - Regularization: Beyond Penalization (Class 9)
Ch. 6 - Sparsity, Low Rank and All That (Class 11, 12, 13)
Ch. 7 - Online Learning (Class 15)
Ch. 8 - Manifold Regularization (Class 16)
Ch. 9 - Multi-output Learning (Class 17, 18)
Ch. 10 - Learning Data Representation (Class 21, 22, 23)
Grading policies

● Problem sets (0.6)
  ○ 4 problem sets (0.15 each)
    ■ 3 - 4 questions (demonstrations/exercises + short MATLAB)
    ■ 10-11 days due
  ○ no late policy or extensions!
  ○ typeset in LaTeX (template will be provided)
  ○ online submission by due date; printed submission in next class

● Project (0.3)
  ○ a) Research (you) or b) (possibly) implementation/GURLS (us)
    ■ Application, theory, survey/review, benchmarks
  ○ 1 or 2 person (max) projects
  ○ What you need to do:
    ■ report (NIPS format): 4 pages (+ Appendix), 6 pages max
    ■ poster session (last week of classes)
  ○ Reports and posters will be put online

● Participation (0.1)
  ○ Attending class lectures is required!
  ○ Sign-in sheet will be circulated 5 (random) times
Problem sets

- Problem sets (0.6)
  - 4 problem sets (0.15 each)
    - 3 - 4 questions (demonstrations/exercises + short MATLAB)
    - 10-11 days due
  - no late policy or extensions!
  - typeset in LaTeX (template will be provided)
  - online submission by due date; printed submission in next class

Dates (due times are 11:59 pm)

- [pset 1] 21 Sep. (due: 10/02)
- [pset 2] 12 Oct. (due: 10/23)
- [pset 3] 26 Oct. (due: 11/06)
- [pset 4] 16 Nov. (due: 11/30?) (after Thanksgiving break!)
Projects

A) **Research** (proposed by you)
   - Application, theory, survey, benchmarks, ...

B) **Pure implementation/GURLS** (if any, suggested by us)
   - report (NIPS format): 4 pages (+ Appendix), 6 pages max
   - poster session (last week of classes)

Dates

- Abstract and title: Oct. 31
- Feedback and approval: Nov. 7
- Poster submission: Dec. 11
- Poster presentations: Dec. 12, 14
- Report submission: Dec. 15