Course Project (10/23-12/4)

- Comparative Analysis of Algorithms
- Done by groups assigned by me (see Canvas)
  - Can switch on request
- Each person will read *at least two distinct recent* papers in the area specified
  - Post 2001, from ICML, AAAI, NeurIPS, JMLR, MLJ, ECML etc.
  - I have sent a "seed" paper to each group
  - Distinct means the papers must not be tweaks of each other, exploring very similar ideas or have a significant amount of overlap
- Each person will implement *at least one* unique algorithm and *at least one* novel extension of the algorithm
- The group will do a comparative evaluation of the algorithms implemented on *at least* 2 datasets

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- Evaluation: 25% of grade
- Each team has a repository on csevcs where you will commit the project code and store papers you read
- Strongly recommend weekly commits for each person
- Writeup to be submitted via canvas
- Writeup/final commit is due Dec 4, end of day
  - No extensions

Structure of report

- The written report will contain :
  - Individual reports with:
    - a survey of the area synthesizing the papers read
    - a description of the specific algorithms implemented, extensions and experiments
    - an insightful discussion of the results
  - A group report documenting the comparative experiments, results and discussion
- Format: at least 25 pages excluding references, single column single spaced 11 point TNR, 1 in margins
- More details to follow in email

Grading Criteria

- Thoroughness of survey
  - Did you touch on all different important ideas?
- Technical strength of implementation
  - How nontrivial were the algorithms implemented?
- Soundness of empirical evaluation
  - Appropriate hypotheses? Appropriate tests performed?
- Insightfulness of results and discussion
  - Beyond “A is better than B”
- Clarity and interestingness of writeup
  - Ability to synthesize material into coherent whole

Grading criteria

- Each person will receive a score on each criterion
- The group as a whole will also receive a score on each criterion
- Your final grade will be 80% of your average score over all criteria + 20% of the group's average score over all criteria
- To get a more than B grade on the "Technical Strength" "Thoroughness" and "Insightfulness" criteria you will need to go beyond the requirements
  - read more papers, implement more algorithms, research multiple extensions, evaluate on more datasets, do an insightful comparison
- Not following the formatting instructions will result in a 20% deduction to your score

Course Project steps

1. Collect papers (>=2 each), store in csevcs papers/ subdirectory. Collect at least 2 datasets. Discuss as a group (or with me) to ensure everything looks reasonable (by 10/31)
2. Read and discuss papers. (by 11/7)
3. Implement algorithm(s). (by 11/21)
4. Carry out detailed comparative evaluation. Investigate parameter settings. Perform hypothesis tests.
5. Write report with your findings.