ECE 8823 (Convex Optimization), Spring 2019

Course Project

The course project is worth 50% of your final grade, and will involve an in-depth investigation of a topic of your choice. The project can either involve advanced study of a theoretical concept of interest or software implementation of a cutting-edge algorithm (or a combination of both).

The project will be done in groups of 2-3. There are 3 things you need to produce:

1. A teaming notification. This simply consists of writing me an email with your group members and a basic (4-5 sentence) description of your topic and what you are going to produce. Send this to me by **5pm on Friday March 15**.

2. A full project proposal; details provided in another document. This is due **in class on Thursday April 4**.

3. Option A:
   (a) A presentation, to be presented in class on either April 18, April 23, or at another time TBD.
   (b) A written summary of your presentation (i.e. something in a similar style to the course notes). This is due **11:59 pm on Monday May 3**.

   Option B
   (a) A 6–8 page paper describing the problem and the results. This is due **11:59 pm on Monday May 3**. Details are provided in another document.

In addition, there should be a working demonstration of any code that is produced.

Possible topics include (these are just suggestions, you are encouraged to come up with your own topic):

- Distributed optimization: theory / algorithms / applications
- Stochastic optimization: theory / algorithms / applications
- Online optimization: theory / algorithms / applications
- Modeling. Show how a problem in a real-world application (machine learning, imaging, design, etc.) can be formulated as an optimization program (convex or not), and implement ways to solve it on a real-world data set. This should be something outside of the examples that we have encountered in class.
- Integer programming
- Nonconvex heuristics for large-scale problems

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