Dear students

For reading assignment 1, please enter your choice by **Monday, July 12** at <u>https://docs.google.com/spreadsheet/ccc?</u>

key=0ApGjHieOqvTAdFhuNDhGb3k5UlhMOXNEVHJpXzJpZmc#gid=1

If you are reading a set of papers of length around 20+, you can present in pairs. You can also suggest a paper that you find more relevant to you and would like to present. But you need verify with me before entering that as your choice in the spreadsheet. For example, you could find some paper in the journal

Journal of Optimization Theory and Applications

at http://www.springer.com/mathematics/journal/10957 or http://www.informatik.unitrier.de/~ley/db/journals/jota/index.html

In the first assignment, you need to present

1.What the motivation is for the paper(s)

2.What are the particular optimisation problem(s) chosen? Explain all variables as well as objective function and constraints in great details.

3.Prove/disprove that the optimisation problem presented is convex.

4.Could you have thought of a different optimisation problem? Fewer/more variables? Fewer/more constraints. You need to present AS MANY ALTERNATIVE optimisation formulations (both simpler and harder) as possible that serve (nearly) the same purpose. Analyse each alternative for convexity, its advantages and disadvantages.

5.Solve the original optimisation problem as well as your alternative formulations using some black box solver such as CVX and/or other solvers you might find at<u>http://en.wikipedia.org/wiki/List_of_optimization_software</u>. Compare solutions for different kinds of input problems and different settings (such as parameter settings).

•NOTE: YOU NEED NOT code the algorithm for solving the optimisation problem in the first assignment. You just need to use a black box solver and present solutions and analyse the same. I have presented a listing of optimisation software

at https://docs.google.com/spreadsheet/ccc?

<u>key=0ApGjHieOqvTAdFhuNDhGb3k5UlhMOXNEVHJpXzJpZmc#gid=4</u>. In general, you can also look at the listing

here: <u>http://en.wikipedia.org/wiki/List_of_optimization_software</u>

Submit a report and a presentation documenting the above and including your overall learnings (atleast one para).

As far as the timeline is concerned, following are steps you need to follow:

1.You will need to meet me next **Tuesday (13 August) between 5 PM and 7 PM or Wednesday (14 August) between 5 PM and 7 PM** to show me your choice of paper(s) and discuss any questions. THIS IS MANDATORY. Please enter your prefered time slot for this first meeting at <u>https://docs.google.com/spreadsheet/ccc?</u> key=0ApGjHieOqvTAdFhuNDhGb3k5UlhMOXNEVHJpXzJpZmc#gid=1

2.I will distribute these presentations between **31st August, 1st september, 7th september and 8th september sometime between 3 PM and 5PM**. To help me schedule, please enter your date preferences at <u>https://docs.google.com/spreadsheet/ccc?</u>

key=0ApGjHieOqvTAdFhuNDhGb3k5UlhMOXNEVHJpXzJpZmc#gid=1

3.You will need to submit your reports **atleast two days before** the scheduled date of presentation(s).

As for assignment 2 (which will be post-midsem), you will have to also understand the optimisation algorithm and implement and test the same.