Convex Optimization Short Course

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About the course

- materials
  - three lectures
  - corresponding code (iPython notebooks)
  
  online at
  stanford.edu/~boyd/papers/cvx_short_course

- course goal:
  *bring you up to speed on basic (applied) convex optimization*

- our focus:
  - problem formulation
  - applications
  - coding
About the course

- we won’t cover
  - theory
  - duality & optimality conditions
  - solution algorithms
  - convex relaxations

(you can learn these things later)

- you need to know some basic
  - linear algebra, probability, and computer science
  - Python, Matlab, or Julia
Outline

1. Convex Optimization Overview
   ▶ read chapter 1 of *Convex Optimization*
   ▶ install CVX, CVXPY, Convex.jl, or CVXR, try ‘hello world’

2. Constructive Convex Analysis and Disciplined Convex Programming (DCP)
   ▶ try out dcp.stanford.edu
   ▶ explore DCP in your chosen language

3. Convex Optimization Applications
   ▶ explore / modify application codes
   ▶ try your own problems . . .
Ready for more?

- *Convex Optimization* (book)
- *EE364a/b* (course slides, videos, code, homework, ...)
- software CVX, CVXPY, Convex.jl, CVXR

all available online

... and many other books and papers on convex analysis, convex optimization, and applications