

A Sample Set of Slides

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(w/ material from Stephen Boyd and Steven Diamond)

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Mathematical optimization

Outline

Mathematical optimization

In the morning

In the evening

(mathy math)

optimization problem has form

$$\begin{array}{ll}\text{minimize} & f_0(x) \\ \text{subject to} & f_i(x) \leq 0, \quad i = 1, \dots, m\end{array}$$

- ▶ $x \in \mathbf{R}^n$ is **decision variable** (to be found)
- ▶ f_0 is objective function; f_i are constraint functions
- ▶ problem data are hid inside f_0, \dots, f_m
- ▶ variations: add equality constraints, maximize a utility function, satisfaction (feasibility), optimal trade off

In the morning

Outline

Mathematical optimization

In the morning

In the evening

Getting up

one	two	three
apple	beta	omega

- ▶ Turn off alarm
- ▶ Get out of bed

code example

```
import numpy as np
y = np.random.rand(5)
print('hello', y)
```


Breakfast

we need a way to represent math x^{π^2}

- ▶ Eat eggs
- ▶ Drink coffee

In the evening

Outline

Mathematical optimization

In the morning

In the evening

In the evening

Dinner

- ▶ Eat spaghetti
- ▶ Drink wine

Going to sleep

- ▶ Get in bed
- ▶ Count sheep