EE 127: Optimization Models

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1 Introduction

1.1 A standard form of optimization

$$p^* = \min_x f_0(x)$$
$$\text{subject to: } f_i(x) \leq 0, i = 1, \ldots, m,$$

where

- vector $x \in \mathbb{R}^n$ is the *decision variable*;
- $f_0 : \mathbb{R}^n \to \mathbb{R}$ is the *objective* function, or cost;
- $f_i : \mathbb{R}^n \to \mathbb{R}, i = 1, \ldots, m$, represent the *constraints*;
- p^* is the *optimal value*.