

Introduction to Mathematical Optimization

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Abstract

Mathematical optimization has applications in diverse areas such as chemical plant design, microbial engineering, material discovery, parameter estimation, airline scheduling, portfolio management, self-driving cars, and electricity markets. Such projects require inter-disciplinary teams where not everyone may have a background in mathematical optimization. Based on your area of expertise, chances are that you might be a part of such a project in future. Thus, a basic understanding of mathematical optimization can help you better leverage your skills in such projects.

In this talk, I will provide a tutorial on formulating optimization models ranging from linear programs (LPs) to non-linear programs (NLPs). The goal of this talk is to demonstrate the capabilities and limitations associated with such models. I will also provide a primer on using [JuliaBox](#) to solve some toy models during this talk. Please bring your laptop if you would be interested in learning the basics of [Julia](#) to solve optimization problems.