

4

optimization

Optimization simply refers to the process of finding a maximum or minimum of certain quantity. It is a process that goes on in many (arguably, all) natural and man made systems - all fundamental laws and theories of physics are based on optimization. It is also the driving force behind evolution of biological systems. Most designs attempt optimization of energy or time or material used or some other

appropriate quantity or combination of these. Mathematically, optimization could be carried out by simply enumerating all possibilities and finding one that is “best” (in some appropriate definition of what is “better”) or by using calculus as some of you may know or will learn in your classes. The exhibits below describe two specific classes of optimization problems that are quite ubiquitous.

