

Optimization Techniques in MATLAB

Prerequisites

MATLAB Fundamentals. Knowledge of linear algebra and multivariate calculus is helpful.



This program has been approved by GARP and qualifies for 7 GARP CPD credit hours. If you are a Certified FRM or ERP, please record this activity in your credit tracker at <http://www.garp.org/cpd>.

Day 1 of 1

Running an Optimization	<p>Objective: Understand the basic structure and process of solving optimization problems effectively. Use interactive tools to define and solve optimization problems.</p> <ul style="list-style-type: none">Identifying the problem componentsRunning an optimization using Optimization ToolApplying the optimization processUsing optimization functions
Specifying the Objective Function	<p>Objective: Implement an objective function as a function file. Use function handles to specify objective functions and extra data.</p> <ul style="list-style-type: none">Using an objective function fileSpecifying objective functions with function handlesPassing extra data to objective functions
Specifying Constraints	<p>Objective: Add different kinds of constraints to an optimization problem in MATLAB.</p> <ul style="list-style-type: none">Identifying different types of constraintsDefining boundsDefining linear constraintsDefining nonlinear constraints
Choosing a Solver	<p>Objective: Select an appropriate solver and algorithm by considering the type of optimization problem to be solved.</p> <ul style="list-style-type: none">Classifying the objectiveChoosing a solverChoosing the algorithm
Evaluating Results and Improving Performance	<p>Objective: Interpret the output from the solver and diagnose the progress of an optimization. Increase accuracy and efficiency of an optimization by changing settings.</p> <ul style="list-style-type: none">Examining the optimizationInterpreting the resultSetting convergence optionsProviding derivative information

**Using Global
Optimization
Methods**

Objective: Use Global Optimization Toolbox functionality to solve problems where classical algorithms fail or work inefficiently.

Finding the global minimum

Using genetic algorithms to solve discrete problems