Meta - Optimization

Optimize the parameters of an optimization algorithm

Optimization
Algorithm

Performance
Index

Optimization
Algorithm
Parameters

Objective
Function
Value

Optimization
Algorithm

Design
Variables

Objective
Function
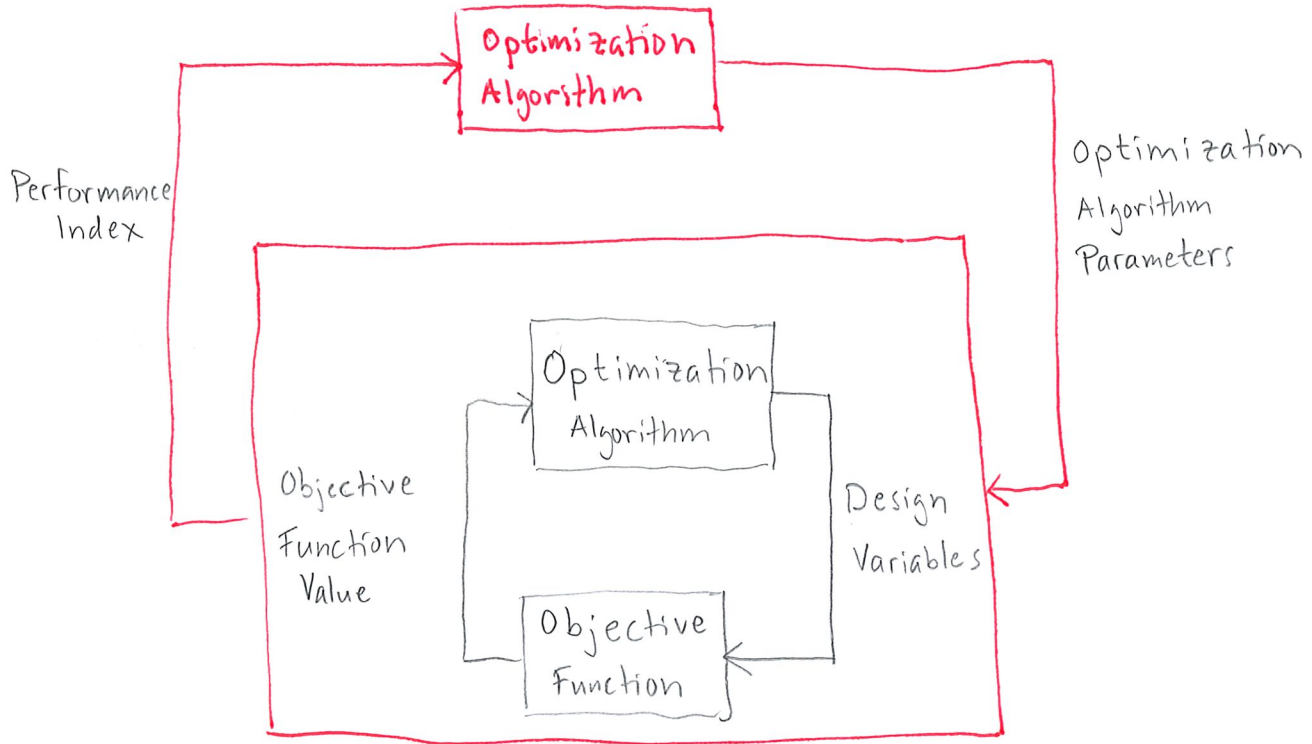
Performance Index

* Measures how efficient an optimization algorithm is

* Enables Meta-Optimization

Example of a performance index:

Chance of finding the optimum by performing m function evaluations

$$\eta = 1 - \left(1 - p_{opt}\right)^{m/n_{eval}}$$

allowed number of function evaluations — m

n_{eval} — mean number of required function evaluations

p_{opt} — chance of finding the optimum by performing ONE optimization