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Sommario/riassunto	Mathematical optimization is the selection of the best element in a set with respect to a given criterion. Optimization has become one of the most-used tools in modern control theory for computing the control law, adjusting the controller parameters (tuning), model fitting, and finding suitable conditions in order to fulfill a given closed-loop property, among others. In the simplest case, optimization consists of maximizing or minimizing a function by systematically choosing input values from a valid input set and computing the function value. Nevertheless, real-world control systems need to comply with several conditions and constraints that have to be taken into account in the problem formulation-these represent challenges in the application of the optimization algorithms. The aim of this Special Issue is to offer the state-of-the-art of the most advanced optimization techniques (online and offline) and their applications in control engineering.