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Optimization in Control Applications

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Message from the Guest Editors

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 to compute the control law, adjusting the controller parameters (tuning), model fitting, finding suitable conditions in order to fulfill a given closed-loop property among others. In the simplest case, optimization consist in maximize or minimize 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 has to be taken into account in the problem formulation which represent challenges in the application of the optimization algorithms.

In this Special Issue call, the aim is to offer a state-of-the-art of the most advanced optimization techniques (online and offline) and its applications in control engineering.