Optimal Control

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1 Introduction

Optimal control deals with finding control laws for a system that meet some criteria of optimality [1]. In classical controls we were concerned with the *instaneous* control (having an output reach a certain reference or setpoint) optimal control concerns itself with the process over the *entire* period that the process takes place.

1.1 State Space Review

The state space representation of a linear time-invariant system has the following form:

$$\dot{X}(t) = A(t)\,X(t) \;+\; B(t)\,U(t) \tag{1}$$
$$Y(t) = C(t)\,X(t) \;+\; D(t)\,U(t) \tag{2}$$

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Equations 1 and 2

References

[1] W. contributors, "Optimal control — wikipedia, the free encyclopedia," 2018. [Online; accessed 30-January-2018].