

# Approximations to control systems: error analysis

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## Abstract

The numerical solution of problems of optimal control and state estimation requires (i) approximation of the admissible controls by a finitely parameterized set of controls; (ii) discretization of the underlying differential equation. The second issue is quite well developed, while the error analysis in the first issue is still in a rudimentary phase. The talk is devoted to some new ideas and results in this area. In particular we investigate the relation between the information pattern of the approximations in (i), the manner of accumulation of the local errors, and the accuracy of approximation.

**Key Words:** control systems, numerical approximation, discretization, error analysis