

Greedy Controllability of Reduced-Order Linear Dynamical Systems

L. Iapichino*, G. Fabrini[†] and S. Volkwein[†]

* Scientific Computing Group, Centre for Analysis, Scientific computing and Applications,
Department of Mathematics and Computer Science,
Technical University of Eindhoven, 5612 AZ Eindhoven, The Netherlands

[†] Department of Mathematics und Statistics, University of Konstanz,
Universitätsstraße 10, 78457 Konstanz, Germany.

ABSTRACT

Often a dynamical system is characterized by one or more parameters describing physical features of the problem or geometrical configurations of the computational domain. As a consequence, by assuming that the system is controllable, corresponding to different parameter values, a range of optimal controls exists. The goal of the proposed approach is to avoid the computation of a control function for any instance of the parameters. The greedy controllability [?] consists in the selection of the most representative values of the parameters that allows a rapid approximation of the control function for any desired new parameter value, ensuring that the system is steered to the target within a certain accuracy. By proposing the Reduced Basis method [2] (an efficient model order reduction technique) in this framework, the computational costs are drastically reduced and the efficiency of the greedy controllability approach is improved.

REFERENCES

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