STUDENT WORK/ THESIS

DEVELOPMENT OF FILTERING METHOD FOR DISCRETE OPTIMIZATION WITH APPLICATION TO SENSOR PLACEMENT

DESCRIPTION:

Filtering methods such as Kalman filters and particle filter are powerful tools in structural identification and structural monitoring [1]. The goal of this work is to develop a filtering scheme that can work with discrete optimization. The method developed in this work will be applied to sensor placement problem commonly occurred in monitoring and control of structures. A comparative study can be made to other approaches such as a newly developed method in [2] (Matlab code available from the author).

BACKGROUND:

Dynamics, finite element method, Matlab.

REFERENCE:

[1] Chatzi, E. N., & Smyth, A. W. (2009). The unscented Kalman filter and particle filter methods for nonlinear structural system identification with non-collocated heterogeneous sensing. Structural control and health monitoring, 16(1), 99-123.
[2] H. Sun and O. Buyukozturk. Optimal sensor placement in structural health monitoring using discrete optimization. Smart Materials and Structures 2015, 24(12): 125034.

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