

Identification Of Errors-In-Variables Model With Observation Outliers Based On Minimum-Covariance-Determinant

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Summary

In this paper, we develop a subspace system identification algorithm for the errors-in-variables (EIV) model subject to observation noise with outliers. By using the minimum covariance determinant (MCD), we identify and delete the outliers, and then apply the classical EIV subspace system identification algorithms to get state space models. In order to solve the MCD problem for the EIV model we propose a random search algorithm. The proposed algorithm has been applied to a heat exchanger data.

References:

1. ALMUTAWA J, 2005, T I SYS CONTR INFORM, V18, P146
2. BAI EW, 2003, AUTOMATICA, V39, P1651
3. BELLMAN R, 1970, INTRO MATRIX ANAL
4. CHOU CT, 1997, AUTOMATICA, V33, P1857
5. GUSTAFSSON T, 2001, AUTOMATICA, V37, P2005
6. ROUSSEEUW PJ, 1984, J AM STAT ASSOC, V79, P871
7. ROUSSEEUW PJ, 2004, TECHNOMETRICS, V46, P293
8. TANAKA H, 2004, T I SYS CONTR INFORM, V17, P89
9. VANMARKOVSKY, 2005, AUTOMATICA, V41, P167
10. WANG J, 2002, J PROCESS CONTR, V12, P841
11. WANG SH, 1973, IEEE T AUTOMATIC CON, V18, P220

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