



# Identifiability of State Space Models

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Book Condition: New. Publisher/Verlag: Springer, Berlin | With Applications to Transformation Systems | It is the objective of Science to formalize the relationships between observed quantities. The motivations of such a modelling procedure are varied, but can roughly be collected around two poles. If one is concerned with process control, one wants to find a model which will be able to predict the process behavior, taking into account the applied inputs. The model will then be evaluated on its ability to mimic the observed input-output behavior under conditions; a varied approach; 1. Transformation Systems.- 1.1 Introduction.- 1.2 Formalism.- 1.3 An example: nonlinear chemical kinetics.- 1.4 Specific problems of transformation system modelling.- 1.5 Conclusion.- 2. Structural Properties and Main Approaches to Checking Them.- 2.1 Introduction.- 2.2 Definitions.- 2.2.1 Structural properties and genericity.- 2.2.2 Connectability.- 2.2.3 Structural observability and structural controllability.- 2.2.4 Structural identifiability.- 2.2.5 Relations between these notions.- 2.3 Practical methods for checking structural observability and structural controllability of linear models.- 2.3.1 All nonzero entries are free.- 2.3.1.1 Graph theoretic approach.- 2.3.1.2 Algebraic approach.- 2.3.1.3 Conclusion.- 2.3.2 Nonzero entries are dependent.- 2.4 Main approaches to structural identifiability.- 2.4.1 Identifiable canonical representations.- 2.4.2 Global optimization.- 2.4.3 Berman and Schoonfeld's approach.-...



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