

The Selection of Input and Output Schemes for a System and the Model Projection Problems

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Abstract: A number of important control theory problems are involved in the selection of input-output schemes of a given system and one family of such problems is referred to as Model Projection Problems (MPP); these problems deal with the selection of effective sets of inputs, outputs out of larger potential sets of inputs, outputs respectively. The aim of this paper is to classify the different types of MPPs and discuss their relevance in the context of integrated system design. The dominant idea running through the present treatment of MPPs is that the suggested solutions aim at producing final models with inherently "good" control structure characteristics. Central to the present approach are problems of transformation of structural invariants. The overall objective of this paper is to demonstrate the importance of Control Theory tools in Early Process Design stages, which are not traditionally associated with control problems.

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