Session 2: Modeling and Control
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Combining Regularization and SVD Truncation for Impulse Response Modeling

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In this work we consider the estimation of FIR models, in the situation where the system is excited with a colored noise input. For this problem, the application of regularization techniques has recently proven beneficial. Low-rank approximation methods based on the truncated SVD also lead to reduced complexity estimates. The link between these two approaches is shown by reformulating the SVD truncation as a regularization problem given a specific choice of the regularization matrix. Moreover, the two methods are combined, to include in the prior both the assumptions about the system and the information about the coloring of the input data. The results show the advantage of these techniques for impulse response estimation.