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Controller Design for Flexible, Distributed Parameter Mechanical Arms Via Combined State Space and Frequency Domain Techniques

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Abstract

The potential benefits of the ability to control more flexible mechanical arms are discussed. A justification is made in terms of speed of movement. A new controller design procedure is then developed to provide this capability. It uses both a frequency domain representation and a state variable representation of the arm model. The frequency domain model is used to update the modal state variable model to insure decoupled states. The technique is applied to a simple example with encouraging results.

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