

Mathematica 9.0 control systems documentation

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Attempt to document flow of Mathematica 9.0 control systems functions as shown in the documentation center.

CHAPTER 1

BASIC MODELING

1.1 Core Models

1.1.1 TransferFunctionModel

1.1.2 StateSpaceModel

1.1.3 SystemsModelDimensions

1.1.4 SystemsModelOrder

1.2 Models with Time Delays

1.2.1 Modeling and Simulation

SystemsModelDelay

StateSpaceModel

TransferFunctionModel

Model Connections

SystemsModelSeriesConnect

SystemsModelFeedbackConnect

SystemsModelParallelConnect

SystemsModelStateFeedbackConnect

Model Manipulations

SystemsModelDelete

SystemsModelExtract

1.2.2 Models with Algebraic Constraints

1.2.3 Model Transformations

1.2.4 Sampling and Inverse Sampling

1.2.5 Options

1.3 Model Connections and Manipulations

1.3.1 Model Connections

1.3.2 Model Manipulations

1.4 Model Simulations

1.5 Classical Analysis and Design

RootLocusPlot

1.5.1 Frequency Responses

1.5.2 PID Tuning

1.5.3 Options

1.6 Analysis of State-Space Models

1.6.1 Controllability and Observability Properties

1.6.2 Controllability and Observability Transformations

1.6.3 General Transformations

1.7 Design using State-Space Models

1.7.1 Pole Placement

1.7.2 Optimal Control and Estimation

1.7.3 Controllers and Estimators

1.8 Matrix Equation Solvers