

Quizzes of TTK4225 - Systems Theory, Autumn 2020

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Question 121

Graphically visualize the state update matrix of a system whose dynamics is defined by

$$\dot{\mathbf{x}} = J_{\lambda}^{(n)} \mathbf{x} + \mathbf{b}u$$

as a function of λ and the dimension of the system. Define what is the range of the matrix, its kernel, its determinant, and its eigenspaces again as functions of the parameters of the system.

Question 122

Graphically visualize the state update matrix of a system whose dynamics is defined by

$$\dot{\mathbf{x}} = \text{diag}\left(J_{\lambda_1}^{(n_1)}, J_{\lambda_2}^{(n_2)}\right) \mathbf{x} + \mathbf{b}u$$

as a function of λ and the dimension of the system. Define what is the range of the matrix, its kernel, its determinant, and its eigenspaces again as functions of the parameters of the system.