

## The Realization of a System's State Space Based on Markov Parameters by Using Flexible Neural Networks

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**Abstract :** — Markov parameters are unique parameters of the system and remain unchanged under similarity transformations. Markov parameters from a power series that is convergent only if the system matrix's eigenvalues are inside the unity circle. Therefore, Markov parameters of a stable discrete-time system are convergent. In this study, we aim to realize the system based on Markov parameters by using Artificial Neural Networks (ANN), and this end, we use Flexible Neural Networks. Realization means determining the elements of matrices A, B, C, and D.

**Keywords :** Markov parameters, realization, activation function, flexible neural network

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