

Approximate positive solutions of nonlinear differential equations using neural networks and localization results

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ABSTRACT.

We present a new method to solve nonlinear differential equations using neural networks. In order to train a neural network, we adjust the data according to a localization result of positive solutions of nonlinear integral equations. The main tool used in the proofs of localization results is a fixed point theorem in a cone, due to Krasnoselskii. Two numerical examples are described to demonstrate the method.

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