
ON NEURAL NETWORK ANALYSIS OF DISCRETE FRACTIONAL ORDER CANCER MODEL BY ARTIFICIAL INTELLIGENCE

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ABSTRACT

This article presents the numerical approximate solutions of the novel constructed Difference Caputo Order Cancer (DCOC) model by employing the numerical Euler method combined with the neural networks approach. The DCOC model is systemized for five variables, further classified into four stages to investigate. Various values in fractional order are considered to study the different scenarios of the DCOC model. The iterative systems of the DCOC model have been formulated by the Euler method with neural networks (ENNs) associated with the computational operation of the Bayesian Regularization (BR), referred to as ENNs-BR. All the outcomes of the DCOC model are conducted by comparing their performance. For the statistical study, the data of the considered model is partitioned into 75% and 15% in two parts. Finally, the results for Performance, Training state, Error histogram, Regression, and fit are graphically illustrated.

Keywords Fractional order Caputo Cancer model · Euler method · neural networks · Bayesian Regularization · Training state.

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