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**خلاصه مقاله:**

In this research, an MLP neural network, which has widely been used in geotechnical engineering problems, is selected and trained by defining the stability factor of an earth dam. To training the network, we first specify the effect of parameters on the earth dam stability, including dam height (H), dam width (B), dam slope (θ), internal friction angle (φ), specific gravity of soil (γ) and cohesion of soil (C) by the Plaxis finite element program. Then, a database of 240 earth dam models is created and used to train the network. Subsequently, we train a single-layer and a two-layer MLP neural network with LM method and compare them. The results show that the single-layer network exhibits better performance in processing time and training quality. Then, the results are compared with the results of the ANFIS network and it is shown that the ANFIS network has a lower capability in defining earth dam stability factor than the MLP network.

**کلمات کلیدی:**

Earth dam stability, Neural Network, ANFIS network

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