

عنوان مقاله:

Investigation of Evolutionary Optimization Algorithms for Estimating Sandstone Compressive Strength

محل انتشار:

پنجمین کنفرانس ملی ژئوتکنیک و دومین کنفرانس بین المللی مهندسی زلزله و ژئوتکنیک لرزه ای (سال: 1402)

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نویسندگان:

Somaie Jolfaei - Department of Civil Engineering, Faculty of Engineering, University of Zanjan

Ali Lakirouhani - Department of Civil Engineering, Faculty of Engineering, University of Zanjan

خلاصه مقاله:

Directly determining rock compressive strength is both laborious and expensive. As a result, indirect estimation methods, such as artificial neural networks, are employed. Input parameters, such as quartz content, dry density, and Brazilian tensile strength, have been used to predict the compressive strength of sandstone. genetic algorithm (GA) and particle swarm optimization (PSO) were selected to improve network training using evolutionary optimization algorithms' effectiveness. The results demonstrate that the PSO model achieved the best estimation performance with an MSE of 0.0214 and R of 0.95. The linear regression model exhibited inferior performance with an R of 0.87.

کلمات کلیدی:

Sandstone compressive strength, Artificial neural network, Evolutionary algorithms, Genetic algorithm, Particle swarm optimization

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