

عنوان مقاله:

Assessment of Rock Strength, Porosity and Los Angeles Abrasion Value through Artificial Neural Networks and Ordinary Least Square Methods

محل انتشار:

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خلاصه مقاله:

Unconfined Compressive Strength (UCS) is the most widely used design parameter in rock and geotechnical engineering and its role in analysis of geotechnical problems is crucial. Laboratory test is the most reliable and direct method for determining UCS, but this method is time-consuming and expensive. But, UCS could be estimated using correlations between UCS and other parameters of rock that are determined by simple and not expensive test methods. In this research attempt is made to study the correlation of the UCS with Los Angeles Abrasion Value and Porosity and estimate the UCS through Ordinary Least Square (OLS) and Multi-layer Perception (MLP) of artificial neural network (ANN) methods. Authors are presented eleven models of these correlations to estimate UCS. Results obtained from these models indicate that the ANN not only performs better than OLS but also provides acceptable and reliable outcomes with respect to the predicted objectives' materialization. The average correlation (R) of results are presented 6.0 by OLS and 6.6 by ANNS

کلمات کلیدی:

Unconfined compressive strength, Los Angeles abrasion value, porosity, ANN, MLP

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