Estimation of the undrained shear strength of east Port-Said clay using the genetic programming

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Abstract

(CPT) is a widely acceptable and reliable geotechnical in situ test. It provides quick and truthful large amount of data about soil proprieties. Undrained cohesion of clay is a main soil parameter that could be estimated from (CPT) results as it is directly correlated to the tip resistance through the empirical cone factor (Nk). Several studies have been carried out to determine reliable values of the (Nk) factor. This study focused on using (GP) to correlate the (Nk) value of east Port Said clay with consistency limits that can be easily determined. Records of 102 data sets were gathered from site & lab investigations in considered region consists of (CPT) results and corresponding triaxial, unconfined compression, consistency limits and physical properties tests. The collected data were divided into training set to develop the (GP) models and validation set to test the developed formulas which show prediction accuracies between 93% and 96%.

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