Evaluation of stress-strain path for soils by learning Modified cam-clay model with recurrent neural network

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ABSTRACT

Gated reccurent unit(GRU) neural network-based stress-strain model of clay is presented. GRU is an advanced recurrent neural network, which learned sequence data to predict. Based on Modified cam-clay model, stress-strain paths of isotropic clay are evaluated on 48 combination compressional parameters of clay. GRU based model learned elastoplastic modulus and elastic strain through backpropagation from past stress and incremental strain sequence. The performance of presented GRU model is evaluated through one-element triaxial simulation from a commercial finite element software ABAQUS.
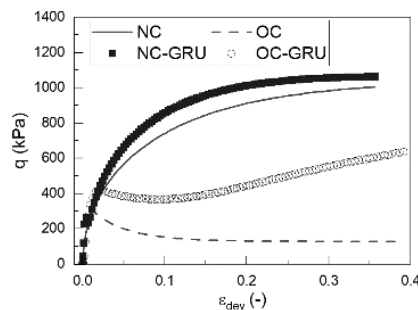
Fig. 1 Testing results of Triaxial test and GRU model.

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