

Abstract

Leveling procedure is required for the design of the engineering projects and is usually carried out practically in the field, which can be considered as one of the most costly procedures. However; some mathematical models are used for condensing spot heights with a relatively low cost.

Artificial neural networks appear as one of the prediction methods used in many disciplines. Although it is widely applied in different fields, it is not widely used in surveying.

The objective of this research is to test the possibility of using such a method for height prediction, and assessing it's precision in comparison with currently used algorithms, taking into account two factors; number of iterations and random seed number (a value that is used to stabilize the weight selection).

It is found that artificial neural networks can give precisions in the range of 3%, 2.61%, and 6.37% of the height difference for flat, gently rolling and mountainous areas respectively. However; for surveyors more improvements are needed to make this method simpler.