

## **THE INFLUENCE OF TRAINING ON NEURAL NETWORKS VERSUS WEIGHTS OF EVIDENCE**

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Neural networks provide a nonlinear alternative to weights of evidence for spatial data modeling in a GIS. A neural network requires, however, an additional explicit training set than weights of evidence. For example in mineral exploration, a weights-of-evidence training set might consist of the point locations of known mineral deposits. The training set for a neural network needs additionally the point location of known "not deposits". Comparison of the results of these two methods seems to show that neural networks more accurately classify the training points. Investigation of the points "poorly" classified by weights of evidence often raises questions about "poorly" classified deposits as valid members of the training set. Similarly, questions of the neural-network result arise about the inclusion of individual "not-deposit" training points. The objectives of spatial data modeling include both data exploration and classification. For data exploration where understanding of the process modeled is the objective, a method that gives insights into the training set and the tested data is best. On the other hand, for data classification where accurate classification is the objective and it is assumed that the training points are uniform and correct, a method that accurately classifies the training set is best.