

An Overview of Machine Learning Technologies for Seismic Interpretation with Case Studies

Abstract

Over the last few years, because of the increase in low cost computer power, individuals and companies have stepped up investigations into the use of machine learning in many areas of E&P. For the geosciences, the emphasis has been in reservoir characterization, seismic data processing and to a lesser extent interpretation. The benefits of using machine learning (whether supervised or unsupervised) has been demonstrated throughout the literature and yet the technology is still not a standard workflow for most seismic interpreters. This lack of uptake can be attributed to several factors including: a lack of software tools, clear and well-defined case histories, and training. Fortunately, all of these factors are being mitigated as the technology matures. Rather than looking at machine learning as an adjunct to the traditional interpretation methodology, machine learning techniques should be considered the first step in the interpretation workflow.