Audit with Machine Learning:
Applying an Unsupervised Machine Learning Algorithm on General Ledgers of an Australian Bank

Abstract

Though existing audit standards do not prohibit the use of data analytics, auditors lack a clear and consistent methodology for it. Considering the nature of audit, we argue that audit is a process of identifying a minority of transactions that have material risks. In other words, it is an outlier detection task given a specific context. On the other hand, machine learning has been proved to be an effective tool in detecting outliers in different contexts such as chemistry and medicine. However, not much research is done in the accounting field. This paper proposed a methodology called Audit with Machine Learning (AML) that introduces an unsupervised machine learning algorithm into audit procedures. AML contains three steps: outlier pool formation, algorithm application, and interpretation. The experiment with an Australian bank dataset shows that AML is able to identify unexpected risks. Though we use bank data, AML is applicable to entries of any industry.