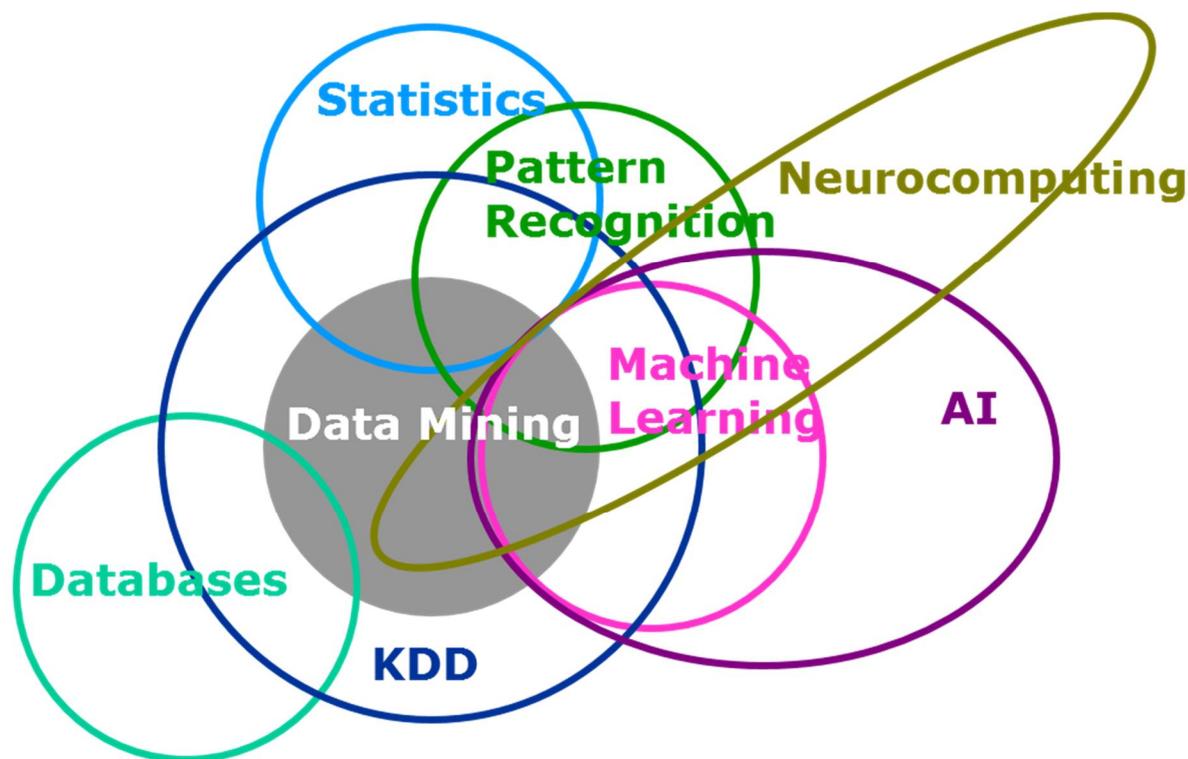


Machine Learning in predictive analytics

by Mohamed Elwakdy | Nov 21, 2016 | Machine learning | 0 comments



How can we use the machine learning in predictive analytics?

Tones of data is collected from different sources: digital marketing, social media, call centers, mobile apps, and more. These data becomes valuable when it allows organization and companies to identify hidden insights and new opportunities to exploit. Because of this having the right information to the right people at the right time allows the organization have a major edge.

The correct use of predictive analytics of data can contribute to an increase in the efficiency and profitability of your business. One example is the use of machine learning to identify patterns in your customer data. Machine learning is a subfield of computer science where computers have the ability to learn through creating computer programs (algorithms); to classify between different types of data, signals or images based on their features. There are many applications of machine learning including Face detection, Facial recognition, Image classifications, Speech recognition and etc.

In general, the classification process of data, signals or images are going through four main steps including features extraction using any analysis tool like polynomial function or wavelet transformation, preparation of data, classification using classifiers like Support Vector Machine (SVM) or Adaptive Neuro-Fuzzy Inference System (ANFIS) or statistical approaches.

The data is divided into two or more classes or divided into groups. In the classification process, classifier is trained using groups of data, signals or images and then using other different groups of data, signals or images for classification purpose. This will help to make a good evaluation of a learning machine and know the classification accuracy through the ability of a learning machine to perform accurately on new patterns of data, signals or images after having experienced a learning data sets. Spam filtering is an example of this classification process, where the inputs are email messages which are classified to “spam” or “not spam”. So basically machine learning in data analytics is a process used to classify and evaluate different kinds of data through making segmentation, feature extraction and use any classifier or statistical approach for grouping data sets to identify patterns.

Another example where data analytics used is the use of it in the healthcare system to improve better health outcomes for people. In clinical research, computer algorithms are used to find patient symptom patterns to identify root cause help Doctors accurately diagnose the patient and provide the best treatment available.

Elder Research Inc. in the USA uses an analytics strategy to improve the healthcare systems and processes, as well as making the analytic insights accessible to the subscribers, the providers, and the health insurers. Using machine learning techniques to analyze large amounts of data allows them to evaluate this data and reinforce their ability in making their decisions.

The benefits include:

- **Assisting in the discovery of fraud, waste and abuse by service providers**
- **Reduction in services required**
- **Fewer duplicates in testing**
- **Warning the patients and doctors about using the dangerous drugs or inappropriate dosages**
- **Identifying when patients stop following the medication plans**
- **Making the treatment techniques more effective**
- **Specifying the prevention measures of diseases through medical research and enhancing drug therapies.**

Outcomes:

- **Preventing adverse reactions to drugs helps to save \$4.64 billion**
- **Using intelligent processes to provide high quality medical services to an expanding population**

Elder Research created a Bayesian adjusted binomial (provider scoring model) which help in the highest quality care for the lowest cost through providing analytics consulting services to assess the performance of Medicaid dental providers, including a team of clinicians and network providers with operational expertise. Insurance data from hundreds of programs over 5 years in 38 states were used to model quality information for specific procedures among 22 million members.

Machine learning techniques are used for the classification purpose to make analysis of big data, which are provided by health insurers, medical scientists, healthcare providers and drug makers, through building algorithms that have the ability to recognize complex patterns within rich and enormous data. This helped in revolutionizing the entire healthcare industry and face challenging problems in healthcare, as this helps the companies and organizations to generate insights and improve the effectiveness of their business strategies. This blog explains the importance of the use of machine learning in the healthcare industry and how it contributes strongly in developing this industry. In the next blogs, you will find out more about machine learning application.

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