

The Next Big Step in Machine Learning

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Think neural networks in today's fast-moving environment - machine learning and data analytics innovations are helping organizations efficiently and intelligently use big data to improve business outcomes. Neural networks, often used within more progressive forms of machine learning known as "deep learning," can push past the linear boundaries of logistic regression analysis, opening up a new world of opportunity with their more precise predictive potential. Let's look at why this is great news for businesses and the consumers they serve.

Explaining straight line versus an inclusive arc

When used for credit assessment, traditional logistic regression models [think: everyone above the straight line is approved and everyone below is declined] tend to put consumers into two categories, such as prime and sub-prime. This can lead to the exclusion of individuals who are suspended just below prime as they work toward building (or improving) their credit profile. One reason these models are popular is because the results can be easily explained to consumers: supporting compliance with Consumer Financial Protection Bureau (CFPB) consumer credit regulations that require increased lending transparency. For example, in a logistic regression framework, a factor like the level of income may only be a positive contributor to a score, while in a neural network scenario it could sometimes be a positive contributor to a score, and in other scenarios be a negative contributor to a score, without an explanation as to why. This may lead to compliance or regulatory risk.

Neural networks create a curved, non-linear arc that can help increase the pool of "approved" consumers by capturing hard-to-score consumers who are not quite prime, yet are clearly trending in the right direction. This could benefit businesses by helping them more securely serve these consumers and drive growth. Neural networks can benefit consumers by giving more people access to mainstream financial services. The problem is, these

networks are rather complex and the outcomes are not easily explainable to consumers, which has raised compliance concerns.

Boosting interest in the data analytics industry

In the credit risk industry, there is an appetite to explore new machine learning approaches. ***Imagine being able to improve approval rates by 7%* by using machine learning techniques like neural networks.*** Excitement around the potential of neural networks and related machine learning technologies is mounting. Experts within the data science and analytics worlds have been pressing hard for a solution that's applicable for use in credit lending decisions. As a result, many firms are producing powerful tools using deep learning techniques.

Leading firms in data & analytics have developed a game-changing technology that leverages the advanced, machine-learning technology of neural networks for risk decisioning. This new technology is highly configurable, granular and predictive. Like traditional models, it offers actionable reason codes that easily explain the resulting scores, which supports regulatory requirements.

The unique, patent-pending technology facilitates a deeper learning of a consumer's behavior and can be applied and deployed wherever traditional scorecards are appropriate - across both the commercial and consumer segments.

The results speak for themselves

Market results show a 7% increase in approval rates* and a 13% increase in detecting bad customers* over and above logistic regression techniques, improving profitability. The benefits can be realized in the knowledge that the scores are explainable and that reason codes can be provided to consumers or businesses when requested.

More to come in the near future

For data scientists within the credit and lending industries, this technology is game-changing. Businesses can finally create a high-performing model that maximizes predictiveness and accuracy, *while also meeting critical regulatory guidelines*. However, if recent advances in neural networking and machine learning tell us anything, it's that we can expect even more advances in the near future. This is just the beginning of many exciting developments ahead.

** Based on a Commercial Insight Delinquency Score improvement achieved by Equifax in 2017.*



About the Author:

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