Updates

Why AI/ML Matters for the Retail Industry

Retailers worldwide are predicted to spend an unprecedented $2 billion on artificial intelligence/machine learning (AI/ML) capabilities in 2018. By 2022, that number will jump to over $7 billion. The reason is simple—consumers spend, on average, 34% more when AI/ML is employed in the shopping experience. In fact, more than half of all online retail sales can be traced to AI engines making recommendations directly to consumers based on their preferences and current trends.

Given the unprecedented success of the AI/ML deployment among online retailers, there is an increasing competitive pressure on brick-and-mortar retail operations to think differently about how they can use their customer data in a rapid and efficient way. However, unlike many online retailers, brick-and-mortar operations face hurdles such as dated IT infrastructure, limited IT personnel and limited IT budgets, which hinder their ability to adapt. These hurdles must be overcome to effectively leverage AI/ML to increase revenues.

Current AI/ML Solutions

On a very basic level, AI/ML enables computers to make autonomous decisions. AI/ML can be employed in a variety of different ways, including using and analyzing customer data to help retailers adapt their interactions with customers in real time to bring about an increased return on investment. Some of the most notable ways AI/ML has been employed by both online and brick-and-mortar retailers are listed below:

Personalization

- **Advanced Gesture Recognition.** AI/ML can be employed to recognize consumer habits and preferences in-store. For example, gesture recognition can be employed to monitor a customer's hand and facial gestures while shopping. The way customers react to certain products can inform the retailer regarding which products will be popular or not. These insights can allow the retailer to quickly adapt store layouts, inventory requirements and discount effectiveness.
- **Augmented Reality (AR).** AR devices, such as a virtual mirror, can vastly improve the shopping process. Instead of taking time to try a variety of different outfits, customers can use virtual mirrors to allow them to see how an item will look on them. AI/ML can be used to examine and analyze a person's body type or preferences and make continuous recommendations on styles and sizes. In addition, it can observe customer preferences and choices in real time and recommend accessories or other apparel that matches. Virtual mirrors increase secondary sale potential and reduce restocking costs. In addition, AR devices and applications can help a consumer see how items will look in their homes and make recommendations based off the consumer's color palate or design aesthetic. It provides context to a consumer and valuable data to the retailer of the trends in that sector.

Customer Service

- **Digital Catalogs.** Digital catalogs can be powered by advanced recommendation engines, which give time back to the consumer. Instead of having to go through hundreds of physical items, a digital catalog can look at a consumer's historical purchases and sets of preferences to provide rapid recommendations based on the keywords used. Online, this takes the form of search engine recommendations. In-store, digital catalogs can direct the consumer to the exact location of the item in the store.
- **Chatbots.** Chatbot deployment has resulted in a huge leap forward in customer engagement. These machines can analyze customer data, preferences or questions and provide rapid and discrete recommendations. They can gain insights from current consumer trends to provide more targeted advice.

Inventory Management

- **Visual Analytics.** In conjunction with technologies such as advanced gesture recognition and digital catalogs, cameras or other monitoring devices can create valuable datasets for retailers. AI/ML can take these datasets and analyze navigational flow and product exposure to quickly adapt a store's floor plan to maximize purchases. In addition, these insights can be used to leverage favorable deals with suppliers in exchange for placement among high exposure avenues.
- **Robots.** AI/ML enabled robot deployment has increased supply chain efficiency. Through the use of AI/ML, robots can be deployed to restock shelves, reset floor plans to increase product exposure and sort inventory in ways that reduce time, effort and expense.
- **Supply Chain Predictions.** Working in conjunction with visual analytics and sales data, AI/ML can be deployed to predict supply and demand. It can analyze past data, track current trends in the market and social media, and make predictive purchases to stock the hot inventory. Instead of relying on a purchaser's gut as to what will be the next trendy item, AI/ML technology can analyze real time trends to make quick decisions based on data.

Legal Issues With AI/ML

Retailers can obtain significant benefits by deploying AI/ML. However, there are legal issues associated with AI/ML technology that must be considered. The most pressing issues is that AI/ML is only as good as its data. AI/ML engines improve in correlation with an increase in datasets. Effective utilization of AI requires that the retailer obtain consumer data to build AI/ML models in compliance with applicable laws (e.g., the GDPR), and that such uses are disclosed in its privacy policies.

Another significant issue is that any AI/ML model generated from biased data will reflect that bias, even if such bias is completely unintentional. For example, a model could predict a higher risk of fraud based upon the zip code of an applicant. Imagine if the residents of a particular zip code were primarily of a historically disadvantaged minority. A retailer denying credit based upon that model would be employing bias against members of a historically disadvantaged minority. In this example, the bias would be unintentional, but it would nevertheless result in unfair impacts to people based upon their race. Because geographic location can be a proxy for race, use of such data must be carefully considered.

As most retailers do not have a cadre of data scientists to develop AI/ML models they rely on vendors. The goal of such vendors is to develop an AI/ML model that solves a problem for one retailer that they can then sell to other retailers. Most retailers will not have an issue if the model does not reflect competitive advantage or proprietary understandings of the retailer's operations. However, in the highly competitive retail sector, there are often competitive concerns regarding the ownership of the model, the confidentiality of the data features and the results/insights of the model/engine. Retailers should consider carefully the type of model that will be developed and the impact to the retailer if the vendor is able to share it with competitors.

Because AI/ML models require a lot of data, a retailer's data can be valuable to a vendor. Consider carefully the value the vendor is going to receive before granting the vendor the right to use that data for other projects/services for other retailers.

These are only some of the considerations a retailer must consider when negotiating agreements dealing with AI/ML.

Conclusion

Competition and the potential for increased revenues are driving retailers to adopt AI/ML. If fully realized, retailers can create a world where consumers purchase more in less time—essentially an express lane for the holiday rush. However, there are real legal concerns that need to be considered as retailers venture into AI/ML.

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