Bestseller: Using AI to unlock the value in your company's data

Summary

Demand prediction relies on making product characteristics available to algorithms. The more information is available, the more variability in historical demand patterns can be captured, and the better the future predictions are likely to be.

However, assessing more granular attributes of products can be difficult and time consuming. Deep learning provides a solution, by rapidly and accurately classifying products with minimal manual intervention, thus increasing the features available for the prediction algorithms. Bestseller's experience illustrates how this works.

Opportunity: Reducing waste and improving turnaround time

In the fashion industry, around 80% of merchandise is sold across two seasons each year, and everything else is highly discounted or ultimately gets donated or dumped. This over-production means sub-optimal profits but presents an enormous sustainability issue as well.

Bestseller designs, makes, and sells clothes for the Indian market. For each of their 4 brands, they design and mockup 3500 samples, of which only 1100 are ultimately selected for production. These successful candidates are stratified into 5000-6000 SKUs[1] (e.g., by color and size combination), and 1.5 million pieces are produced. Of these, Bestseller can sell (i.e., has a *selling efficiency* of) around 78%, which is relatively good performance in the fashion industry, but there is an opportunity to increase this even further by better matching production to customer preferences. With plans to more than double their portfolio of brands 4 to 9 by the end of the year, improving the sell-through rate will have an outsize impact on profitability.

Challenge: Limited design elements are available for analysis

Bestseller set out to better understand the factors that drive sales of a particular product. This would inform the design process such that selling efficiency (i.e., products sold vs. produced) could be improved, and potentially also improve design efficiency (i.e., number of design samples produced). However, an initial analysis using data on product attributes (e.g., color and size), stocking and location, found that there was simply not enough information about the products to create meaningful inferences. They needed a richer dataset.

[1] Stock-keeping units

Clothes can be described in terms of shape, cut, fabric, styles and various design elements. In fact, Bestseller was using a taxonomy of over 7000 design patterns, and 4000 colors alone. Much of these features are discernable simply by observing images of the product, but very little of this information was tagged in the product master data. Bestseller needed a way to extract this information quickly and effectively.

Solution: Parsing images to enrich the features available

The answer was to extract additional features directly from images using computer vision. Bestseller took 10,000 images (one seasons catalog) and developed a model for each of their 4 brands. In just 3 weeks, they were able to develop and train a Convolutional Neural Network (CNN) to classify an image according to various features. These deep-learning derived features could be fed into traditional analysis techniques (e.g., regression or principal component analysis) to better understand the factors that drive sales.

Outcomes: Improved design sampling and selling efficiency

Even with the global sales downturn from the pandemic, Bestseller saw remarkable improvements in both sales and design efficiency over the past 1.5 years. Selling efficiency rose to 82% (up 4 percentage points from 78%), and the number of design samples created for each brand were reduced by 15% without any decrease in the final number of designs selected. This also increased sampling efficiency (i.e., fewer designs created) by enabling designers to focus on a smaller number of designs with higher likelihood of uptake.