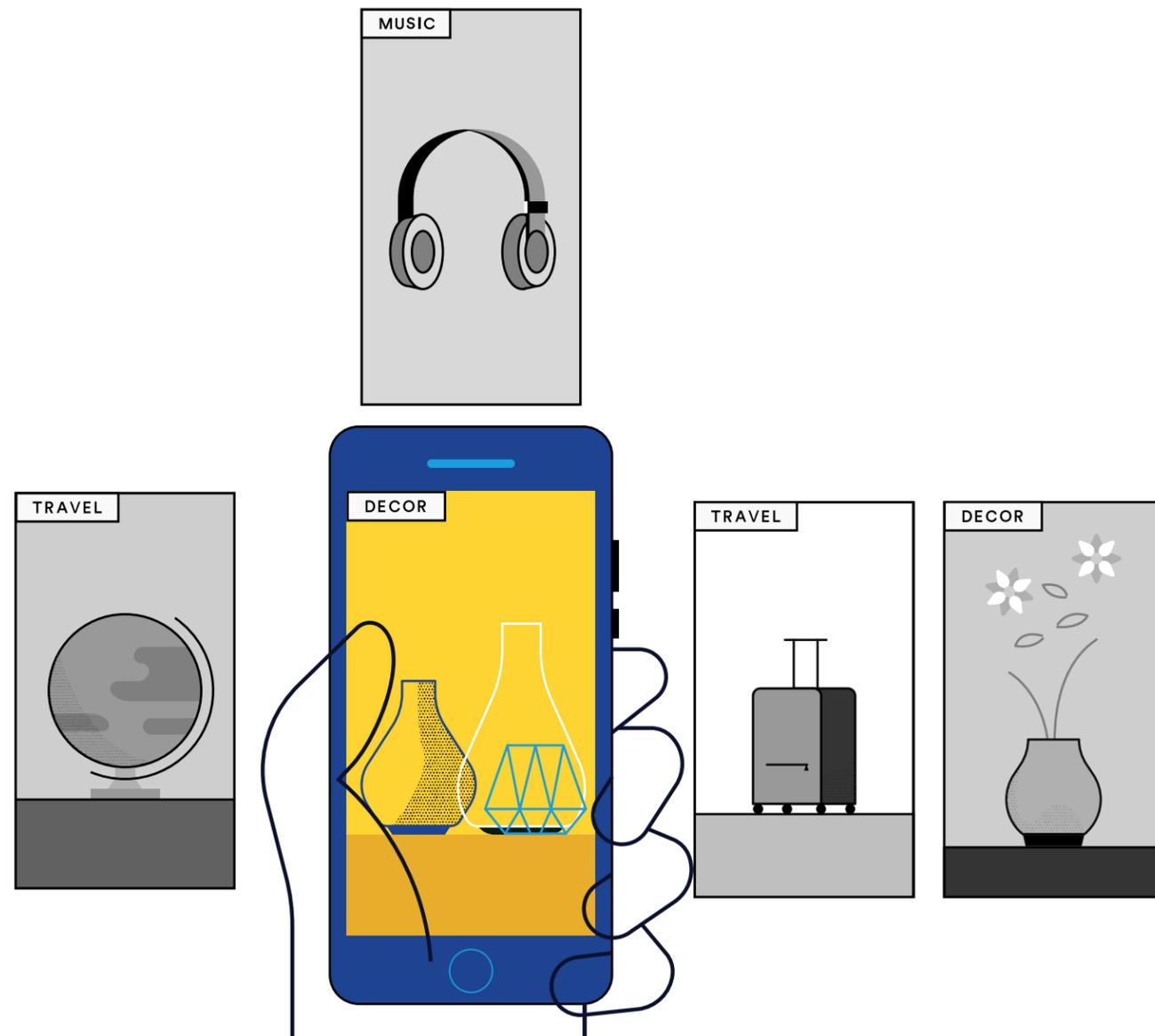


How to Drive Revenue with Computer Vision AI

A RETAIL PRODUCT LEADER'S GUIDE



Introduction

Artificial intelligence is no longer an abstract concept that promises to transform lives; it's already here.

Unfortunately, so is the retail apocalypse— a time of [rampant store closings](#) as brands both big and small are struggling to survive. In a continually changing industry faced with increasing customer demands, standing out from the competition is harder than ever. Shoppers today have lower brand loyalty and higher expectations for retailers, making it crucial for any product team to make smarter, customer-centric decisions that offer relevant experiences that in turn drive revenue.

[If retail businesses want to continue to succeed](#), they must start incorporating artificial intelligence into their systems, workflows, and customer experiences.

Computer vision is a field of artificial intelligence that enables computers to see, identify, and process images in the same way that humans do. Computer vision powers innovations that not only drive revenue, cut costs, and achieve business goals but also serve your customers' specific needs. Product and digital leaders are in a unique position to benefit from artificial intelligence.

This guide demonstrates three ways that computer vision is driving revenue in retail, including real world use cases and examples from retailers large and small.

- Optimizing inventory management and product discoverability
- Delivering exceptional UX
- Hyper-personalizing every interaction

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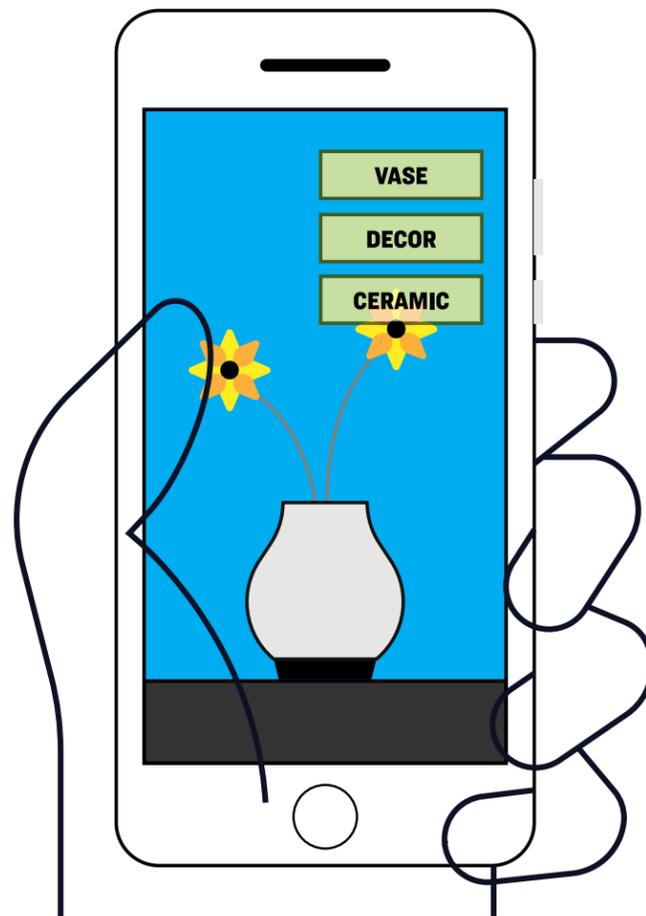
1. Optimize inventory management and product discoverability

Today's consumers are overwhelmed virtually by unlimited choices across multiple purchasing channels.

Artificial intelligence helps smart retailers ensure the right product is discovered at the moment of inspiration, reducing friction and creating a seamless experience.

Product discoverability starts with effective inventory management, which can be made more efficient through the use of AI. Automating your workflow with computer vision saves you and your team time and labor, as well as significantly impacting your bottom line.

Thanks to developer-friendly APIs, integrating computer vision to inventory workflows is easier than you may think.



Automated Product Tagging

Retailers lose countless hours fixing inconsistent, inaccurate product tags in their catalog trying to make their products easier to find. The problem often stems from suppliers, who rarely have a shared taxonomy for labeling retail products.

How? Attributes identified in product images are like a universal language—it doesn't matter which supplier built the product or the source country. Computer vision automatically identifies these attributes and creates highly descriptive product tags.

Computer vision is helping many retailers solve this issue and is boosting efficiencies in their inventory management processes.

Business impact:

- Reduced time to listing helps maximize product exposure
- Better product descriptions improves 3rd party search engine discoverability
- Enhanced onsite search capabilities results in more product views

Real life example: Tradesy

Use Case: Reduce time to listing and increase product discoverability

Tradesy, an online peer-to-peer marketplace for buying and selling women's designer fashion items, serves millions of customers who are looking to share their closets. Over the last five years, Tradesy has grown to a \$74.5 million company. How has Tradesy been able to stand out among other clothing resellers in the growing sharing economy? With the wide range of product styles and sizes making search difficult to achieve, Tradesy uses computer vision to automatically categorize user uploads and surface results in search to shorten time to market. Bag brands like Louis Vuitton, Chanel, and Gucci are tagged with a 98% accuracy, providing greater consistency in listings and resulting in increased conversions from more relevant search results.

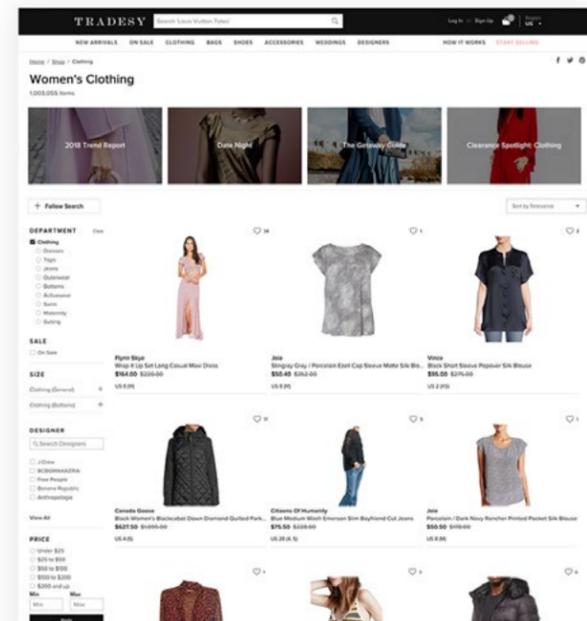


Image right:
Tradesy.com

Image Quality Moderation

Low quality product visuals impact eCommerce bounce rates and can be damaging to retail brands.

This is particularly problematic for online marketplaces as they tend to feature huge volumes of user-generated images—which are often lower quality and sometimes contain inappropriate content.

Reviewing product visuals for quality and content is a vital

process to maintain brand integrity for retailers, but manual review diverts precious hours from more impactful work.

Many retailers are now using AI to automatically flag and remove low quality or inappropriate pictures from their site, which in addition to saving hundreds of hours every week also frees up team members to spend their time on more fulfilling and strategic tasks.

Key benefits:

- Instant recognition & removal of low quality images maintains brand perception
- Higher quality product visuals on site decreases bounce rates
- Reduction in human image moderation hours frees up labor for other tasks

Real life example: Homes.com

Use Case: Reduce time to listing and increase product discoverability

Homes.com's new Snap & Search app (powered by Clarifai's AI platform) offers users an entirely new way to discover their dream homes. By simply snapping a photo of a house similar to their "dream home" and uploading it to the app, users instantly receive listing recommendations, making their dream home discovery process much simpler and smarter.

Snap & Search Functionality

In this age of instant gratification, consumers expect to be able to purchase on the go. However, thanks to widespread adoption across the industry, mobile apps are no longer differentiators for retailers.

Mobile-enabled visual search (or 'Snap and Search') helps connect customers with precisely what they are looking for at the moment of inspiration. Customers simply upload photos via their mobile devices and are served visually similar items instantly.

Key benefits:

- Shorten path to purchase by offering customers exactly what they want, when they want it
- Connect offline inspiration to online purchase
- Enable high intent customers to make impulse purchases

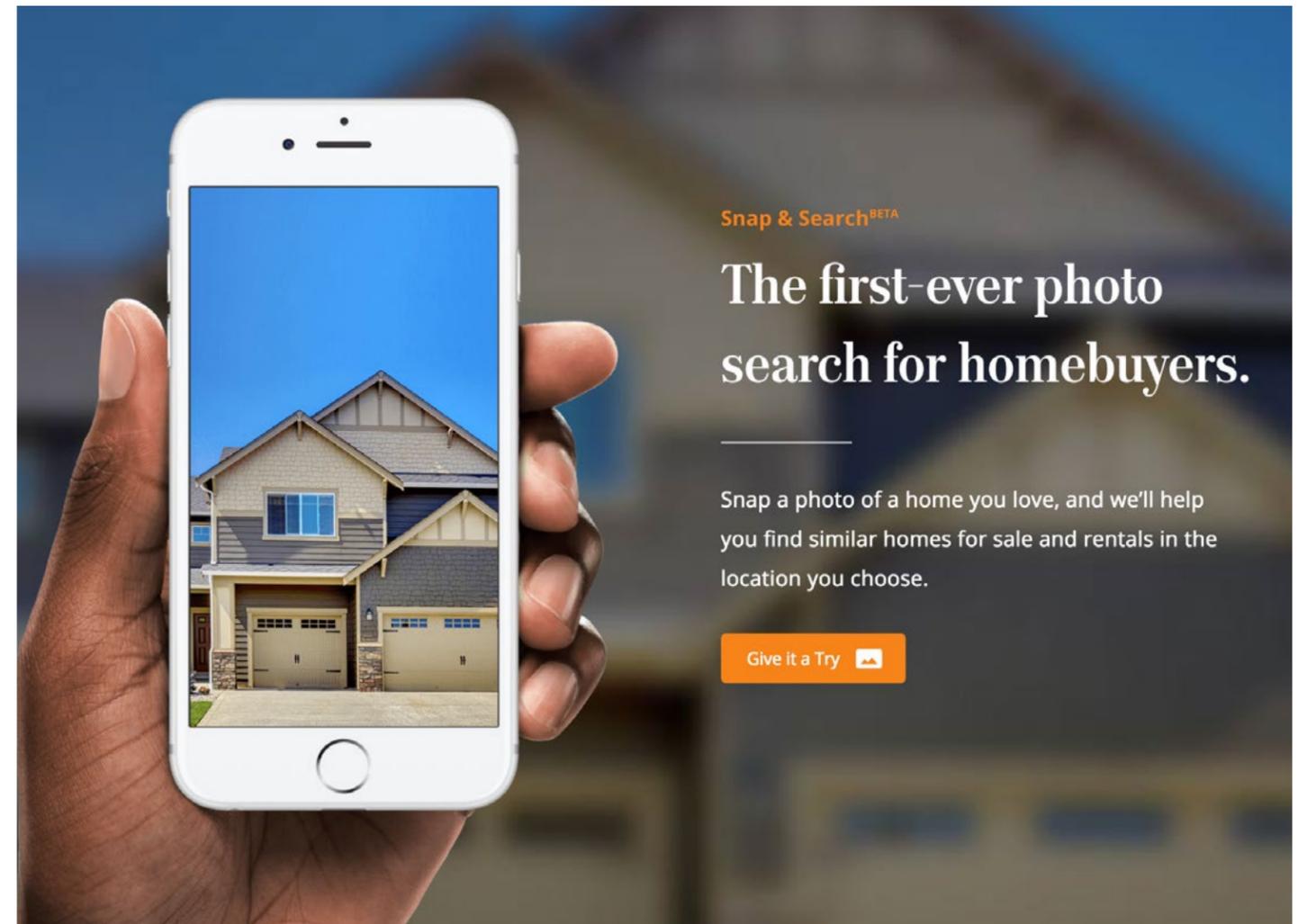


Image above:
Homes.com [Snap & Search](#)
functionality powered by Clarifai

2. Deliver exceptional UX

Every retailer knows that delivering a satisfying, frictionless shopping experience is key, and consumer expectations have never been higher.

According to studies by the Nielsen Norman Group, users will [abandon your site within 10 seconds](#) if they don't see what they want.

Computer vision helps retailers improve user experience by not only accelerating the journey from inspiration to purchase, but also through offering new ways to help shoppers to source items that match their style.

This directly impacts the bottom line: surfacing the right content, to the right user, at the right time, delivers larger average cart sizes and keeps customers coming back for more.

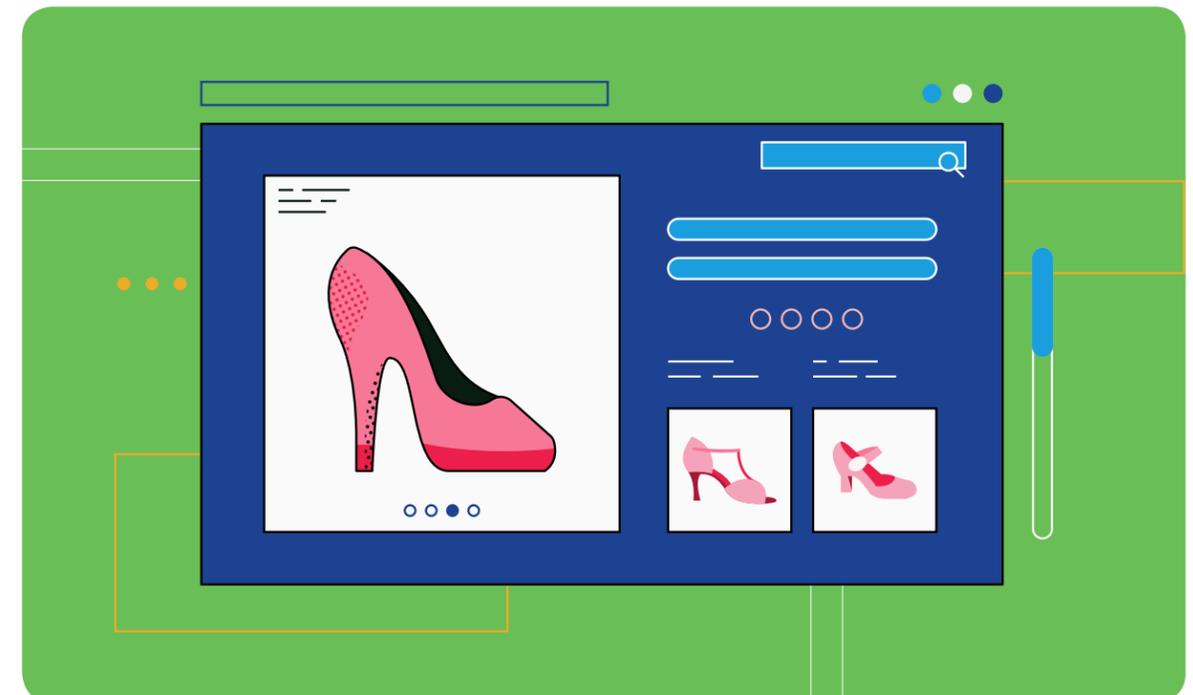
“You Might Also Like...”

Intelligent product recommendations that shoppers might also like—driven by computer vision—are also increasing the likelihood of purchase.

Recommendations powered by computer vision go beyond keyword search matches (i.e. red heels) to include visually relevant products that match other important characteristics, such as color, shape, and pattern.

Business impact:

- Offer specific, relevant purchase options to keep shoppers engaged
- Deliver consumer satisfaction via a faster journey from inspiration to purchase
- Reduce bounce rates and increase conversions



Out-of-Stock Alternatives

Finding a product you like only to be told it's currently unavailable is a frustrating experience. In the past retailers have tried to maintain buyer interest by implementing tactics such as in-stock email notification options. However, retailers are still losing billions of dollars thanks to these lost purchase opportunities.

Computer vision offers a significantly more effective way to handle out-of-stock scenarios by returning items that are visually similar to the unavailable product as an alternative to the customer, who is then able to complete their purchase quickly without looking at competing sources.

Business impact:

- Maintain competitive edge by proposing relevant alternatives
- Offer frictionless shopping experience even when items are unavailable
- Reduce bounce rates and increase conversions



Real life example: West Elm

Use Case: Social inspiration

West Elm's Pinterest Style Finder, powered by Clarifai's AI technology makes product discovery a breeze as the application analyzes a customer's inspiration boards to recommend shoppable West Elm items. This connection between users and products increased basket size and specifically saw a revenue increase from visitors ranging between 20% and 30%.

By building a tool that was accurately able to identify a user's personal aesthetic, West Elm was able to improve their customer experience strategy through creating various touch points in-store, online, on mobile, social and beyond.

Social Inspiration

Sometimes shoppers love a style, but they don't know how to describe it for a keyword search. With the rise of social media sites like Pinterest, it's easier than ever for consumers to curate images that match their taste.

Retailers are beginning to capitalize on this by connecting consumers to the products that directly match their style by using computer vision to identify styles in the consumers' social media to the items that are visually similar in their inventory. For example, a customer can connect their Pinterest board to a retailers' website and be shown multiple items that correspond to their favorite pins.

Image right:
[West Elm Styler Finder](#)
 powered by Clarifai



Key benefits:

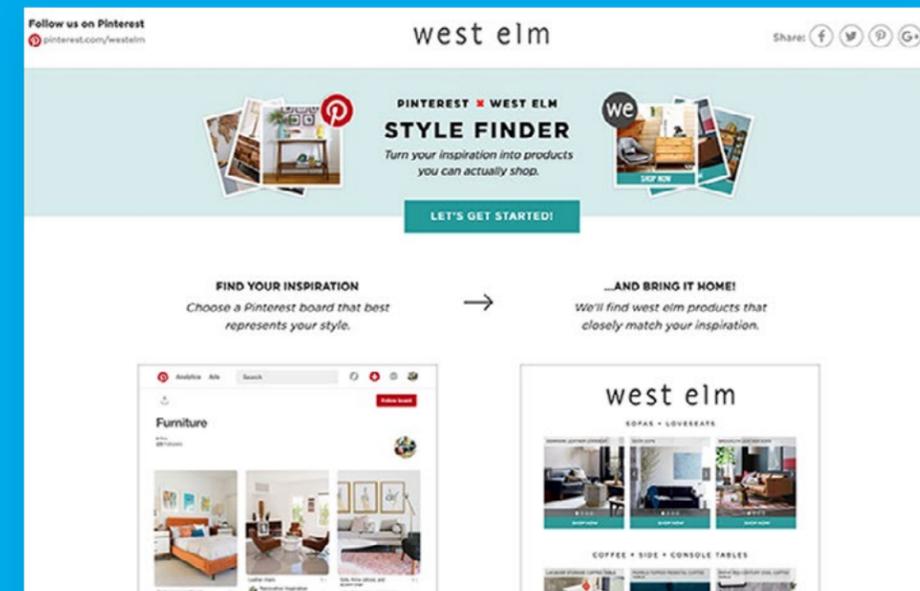
- Deliver exceptional user experience, connecting style to purchase
- Increased basket size, with multiple purchases
- Greater cross-sell and upsell abilities

“

Style Finder can be useful even when it fails to find a product for someone. A lot of people on our merchant team and our product service team realize that they can use this to find holes in our catalog, to understand the styles that people are really interested in. It's taking direct input from our consumers.

”

Luke Chatelain,
 West Elm, VP of Innovation



3. Hyper-personalize every interaction

Data may be the new oil, but there's a difference between having it, understanding it, and knowing how to use it.

Retailers are spending more time and money on creating tailored, targeted, and relevant consumer offers.

But, demographic data and purchase history only show part of a much bigger picture.

Personalization is having a big impact on retail. In fact, brands that create data-driven personalized experiences are seeing [revenue increases two to three times faster](#) than those who don't.

To create truly customized promotions that engage, re-engage and retain customers, retailers need to look beyond traditional consumer segmentation. What's really needed is the ability to provide

more curated, personalized product recommendations based on your customer's visual tastes.

Computer vision uncovers hidden value in retailers data by providing a deeper understanding of their target audience's stylistic preferences.



Contextualized Banner Ads

Retailers in the US are expected to spend [\\$23.5 billion in digital advertising in 2018](#)—more than any other industry—thanks to a hugely competitive landscape and the continued dominance of Amazon. But how can retailers ensure their ads perform and deliver ROI?

Traditional banner ads are served based on either historical online behavior or similar customer behavior. For example, if someone browsed or purchased an item in the past, they are shown the same item in the future. Or, if someone of a certain age, location, and gender bought something in the past, a new visitor with a similar profile will be served that ad in the future. These two means of serving ads and recommendations are no longer the most relevant way to target consumers.

Contextual relevance is key to standing out from a vast range of products being advertised online at every second. Using visual recognition, it's now possible create a banner ad which can adapt its messages to millions of different images on a consumer screen, in real-time, connecting potential customers with highly relevant products to purchase. Nothing is a better indicator of a consumer's current interests than their current browsing behavior.

Business impact:

- Increased relevance by showing the right product, at the right time, in real-time
- Higher click-through rates deliver greater ROI on digital ad spend

Real life example: MRM//McCann

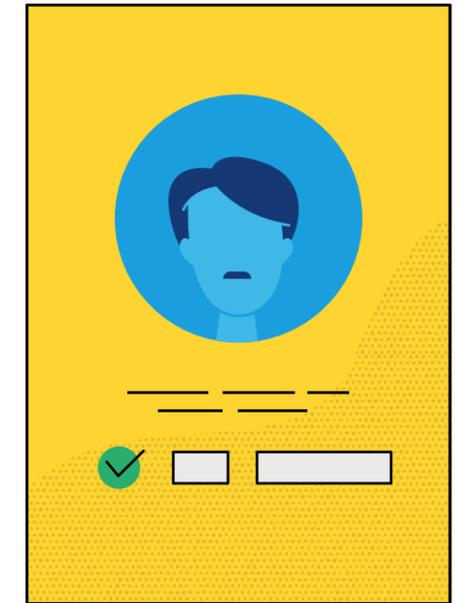
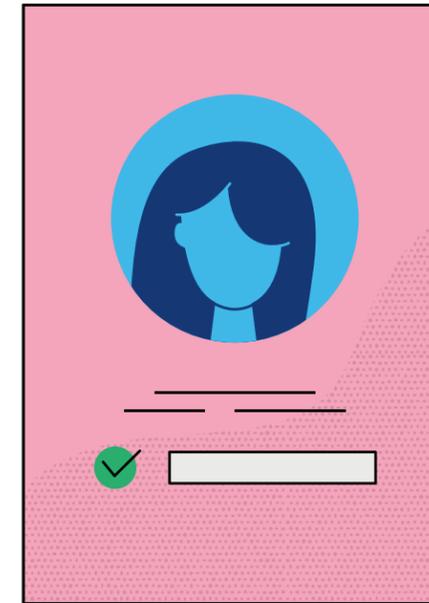
Use Case: Serving real-time ads targeted to online user behaviour

MRM//McCann, one of the world's largest global digital marketing agencies, is now able to serve content-relevant ads based on what a customer is interacting with on a site in real-time.

For example: when working for their client Vattenfall, one of Europe's biggest energy companies, MRM//McCann first identified a target site on which they could run "smart" banner ads for Vattenfall's vast offering of energy-friendly consumer products. Hemnet, Sweden's largest real estate website, offered the perfect platform for Vattenfall to target potential customers.

In order to get Hemnet visitors to consider Vattenfall's smart home products with relevant ads, MRM//McCann combined real-time user data from Hemnet.se with Clarifai's real-time image recognition API.

MRM//McCann was able to combine real-time user data from Hemnet.se with over 11,000 image recognition concepts like "indoor," "outdoor," "pool," and "lighting." They then cross-linked this to a list of banner ads for products that were relevant for the image a Hemnet visitor was looking at. The result was a banner ad that could adapt its message in real-time according to what the visitor sees.



Retargeting with Personalized Ads

Retargeting done right can drive revenue growth by re-engaging consumers, but the cost of creating ads that don't perform is a massive drain on many retail budgets.

Computer vision allows innovative retailers to efficiently surface the right ad to the right audience by personalizing the content to their visual taste. It is now possible to use dynamic ad creatives to show visually similar products to those browsed or purchased in the past.

Key benefits:

- Re-engage with consumers who abandoned cart by showing visually similar items
- Retain customers and increase customer lifetime value by showing products that match their visual taste



Smarter Promotional and Abandoned Cart Emails

Retailers are successfully re-engaging consumers by using computer vision to tailor the images promoted in emails to the shoppers' visual preference in patterns, shapes, styles, and colors.

This is helping retailers recover high-intent visitors who abandoned cart and is helping create brand loyalty with existing customers

Business impact:

- Re-engage with high-intent consumers who abandoned cart
- Retain customers - inspire repeat purchases
- Increase customer lifetime value by upselling items matching visual taste

Bonus: Bringing online insights to brick and mortar shops

Computer vision's usage is not limited to e-commerce; it offers a tremendous amount of potential to unlock customer insights in a brick-and-mortar setting to boost foot traffic in stores.

For example, sentiment analysis can recognize a shopper's gaze, which can inform decisions about serving new products.

Computer vision can also understand how customers move in an aisle, aid in-store operations, and can even identify theft. Computer vision can also be utilized both in-store and online, resulting in a truly personalized and seamless shopping experience that adapts to your customers' changing wants and needs.

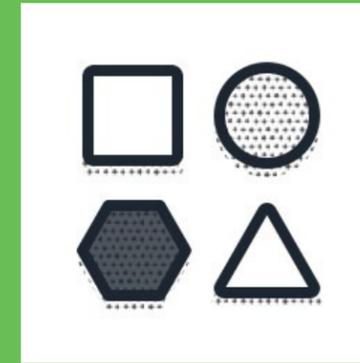


Clarifai's computer vision AI platform

Designed to augment your business with AI solutions that make it easy to integrate into your existing product or technology.

- ✓ Create efficiencies and automate manual processes
- ✓ Increase revenue and sales
- ✓ Enhance your customer experience
- ✓ Create groundbreaking, innovative, and fresh applications

[Talk to an Expert](#)



Organize & Curate



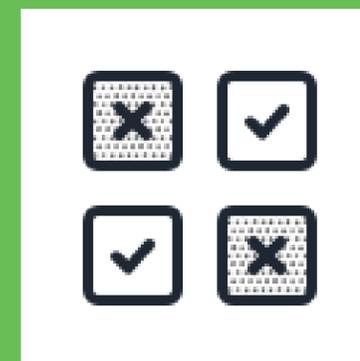
Visual Search



Recommendation & Discovery



Customer Analytics



Moderation

