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AI and CV Boost Digital Signage Results

By TERESA MEEK   JULY 1, 2021

Businesses have used digital signs to display messages for years, but have those messages been effective? Until recently, no one knew.

Now, Computer Vision (CV) and AI technology can help answer that question—and do much more. Picture digital signage that not only shows whether customers are paying attention to a display but whether they are engaged with or indifferent to its content. Or a camera that analyzes body language in real time to warn store security of suspicious behavior. Or even one that warns "Stop!" if someone lights up a cigarette while pumping gas.

These are just a few of the applications that have emerged as digital signage systems get smarter. As adoption of the technology grows, it is creating a wealth of new opportunities for retail businesses and systems integrators alike.

Personalizing Digital Signage Content

It's no wonder that CV- and AI-enabled displays are a boon for retail, where customers increasingly expect a personalized experience. An Accenture study found that 91% of consumers are more likely to shop with brands that provide relevant offers and recommendations.

Early on, algorithms simply counted viewers, then—becoming more sophisticated—could distinguish gender and relative age, for example. "Now displays can see if someone watches an ad to the end or if they walk away. They can recognize a brand logo—such as Puma—on someone's shirt, and then, for example, offer them a discount code on the new Puma brand shoes," says Raffi Vartian, vice president of business development and strategic partnerships at AI technology company meldCX.

CV-enabled signs process incoming viewer metadata at the edge in real time, automatically changing content to suit their preferences and creating anonymous user story data for additional analysis.

As an example, for a young couple, a bank might display mortgage information, while customers in their 20s will see images of adventure travel. An older person carrying an expensive handbag might be shown information about retirement savings, tax savings, or wealth management.

And with meldCX Viana Vision Analytics, data is first inferenced at the edge, then securely transmitted to the cloud, where it is further analyzed to show banks, grocery stores, and other businesses specific information that reveals their content's effectiveness (**Video 1**).
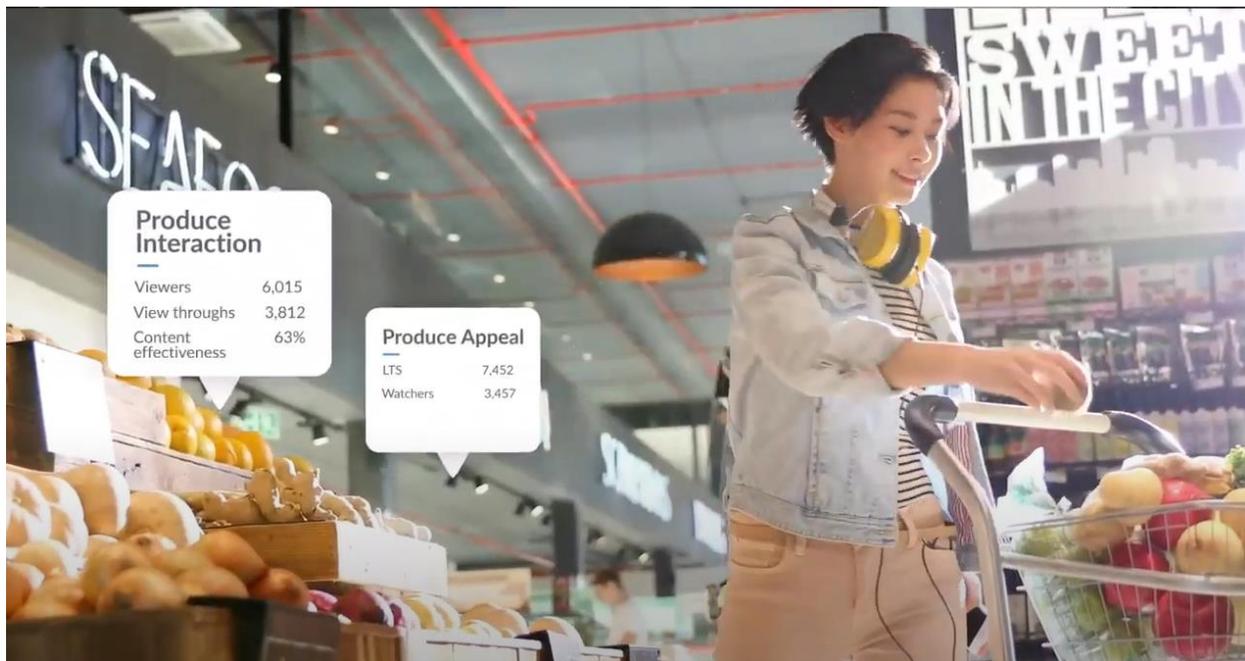
Video 1. The Viana Vision Analytics allows retailers to gauge the effectiveness of digital-sign content. (Source: meldCX)

To maintain privacy and GDPR compliance, the platform stores no personal information at the edge, and only metadata—not video feeds—are transferred to the cloud. "The only information that goes to the cloud is ones and zeros," Vartian says.

Diverse Use Cases for Digital Displays

Showing the right customers the right content at the right time helps businesses get more bang for the buck from their digital signs. One of Australia's largest banks has invested a lot into digitizing its in-branch experience by providing meaningful and relevant content on its digital signage network. But the bank struggled to demonstrate value and ROI because it is difficult to measure content engagement on digital signage.

Viana generated monthly playback reports containing insights such as top personas, busiest time of day, content rankings, and content effectiveness ratios. As a result, the bank has been able to create more strategic and effective campaigns, resulting in an 87% increase in customer engagement over a three-month period.

Expanding Opportunities for SIs

As the use of computer vision grows, it is providing a flood of new opportunities for SIs, who can install Viana on customers' existing security cameras. "We can deploy our technology into about 90% of cameras on the market," Vartian says.

Specialized knowledge isn't necessary. "We've tried to make it as simple as possible, for both retailers and their SIs, with one-click-install software, built in dashboards, and real-time APIs for the more advanced use cases," he adds.

Today, computer vision systems are being developed for dozens of uses outside the retail environment – including self-service. For example, [customers at Australia Post no longer have to wait in line and talk to a representative to mail packages](#).

Instead, they drop parcels on a scale, where a meldCX solution measures their size and weight and verifies the sender's identity, the recipient's address, and the shipping cost. "The computers even recognize sloppy handwriting in terrible lighting conditions. We used 1.7 billion data sets to show them how to do it," says Vartian.

The technology can also be used to improve workplace operations. For a warehouse, meldCX created a system that alerts packers to missing items and gathers information about productivity. "Are there specific colors of products that may trick the eye? Do people in a warmer part of the warehouse tire out faster than others or make more errors? Small changes can make a big impact," Vartian says.

To train algorithms for specialized needs, meldCX uses the Intel® OpenVINO™ Toolkit, which allows developers to easily export code to new models. "Intel® has gone to the mountain and brought out the ore, so we don't have to spend our time prospecting and mining, we spend our time refining the platform and identifying use cases that require customized training," says Vartian. "It saves us an enormous amount of time."

As people start to see AI-based cameras in more places, demand for customized solutions will grow, Vartian predicts: "The cameras are already there—you just have to make them smart. The applications are virtually unlimited."

About the Author

Teresa Meek is an independent writer and editor with a background in journalism (Miami Herald, Newsday) who now specializes in content marketing. She writes blog posts, case studies, white papers, video scripts, and ghosted thought leadership pieces for major brands. Her clients have included Dell, Hewlett-Packard, Microsoft, Coca-Cola, Delta, Humana, JPMorgan Chase, and many other Fortune 500 companies. She is the author of the Amazon ebook Say It With Feeling: Business Writing in the Internet Age. She would be delighted to connect with you on LinkedIn or Twitter.