

Optimizing Retail Operations with Cutting-Edge AI-Powered Computer Vision

Challenge

A major retailer operating throughout the U.S. wanted to modernize in-store operations by leveraging AI technology. Because it was difficult to staff certain locations, the company needed to increase efficiency to effectively utilize their workforce. The retailer began working toward the creation of an advanced AI-powered computer vision system that could provide solutions as well as new ways to serve customers.


The goals for this initiative included:

- **Efficiency:** Streamline personnel in their daily activities utilizing AI model guidance.
- **Service:** Elevate the customer experience with real time AI-directed assistance in the stores.
- **Optimization:** Achieve an increase in work output through AI efficiencies without the need for additional investment in personnel.

Each of these goals would serve to make overall store operations more effective and boost sales. However, the business encountered difficulties along the way. The initial solutions partner had been unable to deliver the expected results for the computer vision implementation, leaving the project stalled. The company turned to INSPYR Solutions, a partner with the experience and capability to create advanced AI solutions.

Solution

INSPYR Solutions immediately assessed the current implementation and made a series of recommendations. One of the core issues was that the existing computer vision model lacked enough image data to be accurate across different lighting and environmental conditions, as well as other factors.

A blue triangle graphic pointing downwards, located at the top right of the text box.

Once the AI and computer vision systems were launched, it was easy for the client to scale the implementation to a set of test stores and then to over 1,000 locations.

Fortunately, the technical team's deep expertise in this AI subspecialty was well established after completing several other successful advanced computer vision projects for well-known brands. Drawing on this experience, the team delivered specific, targeted recommendations to bring the model up to standard as quickly as possible.

Key elements of the solution included:

Object detection: INSPYR Solutions addressed the level of accuracy by expanding the image sample set threefold to greatly increase accuracy. The AI performs tasks such as identifying products customers are interacting with and provide relevant information to staff members.

Facial recognition: Computer vision allows the AI to recognize faces and utilize that information to alert employees about customer needs, status, and other suggestions.

Generative AI: The computer vision component now works seamlessly with the generative AI functions to provide employees with near-instant information about products, recommendations, VIP customers, training information, and more.

Intelligent predictions: The AI proactively notifies employees of customer behavior and intent based on tracking through computer vision, enabling staff to engage customers before they seek out assistance. It can also make recommendations to staff based on how customers interact with specific products through object identification.

Outcome

Expanding the sample image set immediately brought the computer vision's object detection and identification capabilities to 90% accuracy, and the team continued to fine tune the model. The AI, now equipped with far more accurate visual capabilities, could be leveraged to utilize personnel more efficiently and enhance in-store operations.

This resulted in the following improvements:

Optimization: In-store operations work more effectively with the rich information provided via the AI's computer vision working along with its generative functions.

Customer service: The object detection and facial recognition components contribute to providing improved, tailored services through analyzing patterns, objects, and other data.

Value: Utilizing AI has made it easier for employees to do their jobs and stores will be less impacted if there is a shortage of staff.

Scalability: Once the AI and computer vision systems were launched, it was easy for the client to scale the implementation to a set of test stores and then to over 1,000 locations.

After the successful delivery of the solution, INSPYR Solutions has become the client's go-to partner for AI-related projects, a testament to our expertise and wide range of AI, machine learning, and related capabilities.

Client Profile

The client is a major retailer both online and across its many physical locations in the U.S. The company serves a diverse customer base by fulfilling a wide variety of needs no matter where customers are. This Fortune 500 business is known for providing great value to consumers through quality products, excellent service, and low prices.

Technologies Supported

Artificial Intelligence, Machine Learning, Generative AI, Computer Vision, Facial Recognition, Object Detection

About INSPYR Solutions

Technology is our focus and quality is our commitment. As a leading expert in delivering flexible technology and talent solutions, we strategically align industry and technical expertise with our clients' business objectives and cultural needs. Our tailored offerings include a wide variety of professional services, project solutions, managed services, and talent resources, all bolstered by our strategic partnerships with cutting-edge technology services. By always striving for excellence and focusing on the human aspect of our business, we work seamlessly with our talent and clients to match the right solutions to the right opportunities. Learn more about us at www.inspyrsolutions.com.