Vision AI Helps an Automobile Giant Automate Brand Inspection & Optimize Cost

One of world's largest two-wheeler manufacturers with a network of 4,000 showrooms and service centers catering to a customer base of over 44 million was looking for a custom AI solution to automate brand inspection and track brand anomalies across their sales and service touch points.

https://akaiketech.com/usecase-brnd-com

Industry Overview

The automobile industry is changing rapidly. Autonomous driving, electric powertrains, digital services, and mobility platforms have become the key pivots to an industry on the verge of disruption. Much like tech businesses who have opted for digitization and increasing automation to become customer-centric, automotive and mobility players are reinventing themselves for the future.

Business Challenge

Instore experience is critical to purchase decisions and customer loyalty. The client wanted to streamline and ensure consistency across all visual brand touchpoints within the showroom and service centers extending to franchisee operated outlets. They wanted the manual inspection of brand placements and visual merchandising which was human effort intensive, slow, and prone to errors, replaced with a Vision AI alternative.

Solution

Akaike blended Vision AI and Deep Learning to craft a solution that was deployed in three stages.

Capture - A high-resolution digital phone camera was used to capture images of points and formats in which the brand was physically displayed. This included staff uniforms, billboards on an outlet's entry door, signage near the store and in the showroom, furniture in the lounge area, cleanliness in service areas, product display stands, and several other banners spread in and around the stores.

Identify - Using Vision AI algorithms, batches of images were sorted and relevant images compared to the corresponding visual brand guidelines. While image-processing, a range of differences were noted. Discrepancies including visual quality changes like faded colors, torn material, warped surfaces, and occluded brand displays were identified and labeled.

Transfer - The drawn insights were then transferred to an easy-to-use graphical interface that summarized this information into actionable data for the management.

Akaike's brand compliance solutions are cloud or edge computing agnostic offering flexibility in balancing data privacy and costs. The inbuilt libraries, DL models with transfer learning capabilities, and unique designs drawing reliable inferences with minimal training data provide actionable insights enhancing business efficiency.

Technology Overview
Let's take a look at what is under the hood of this custom AI solution.
Segment - ResNet (Residual Network) and U-Net algorithms were used for image segmentation which minimized training errors.
Classify - The Deep Learning model was trained on hundreds of images. This included training the discriminator on bad or non-compliant images as against good or compliant images captured from the client's location.
Synthesize - The non-compliant images were synthesized for training and were generated using the GAN (Generative Adversarial Networks) technology. The creation of synthetic bad images in a data-starved environment played a key role in designing the solution.
Deploy - It was deployed on the secure, scalable, and cost-efficient Azure cloud platform with a user-friendly GUI for data storytelling.

Akaike's experienced ML and DL Ops teams ensure efficient deployment, integration, and ongoing maintenance.
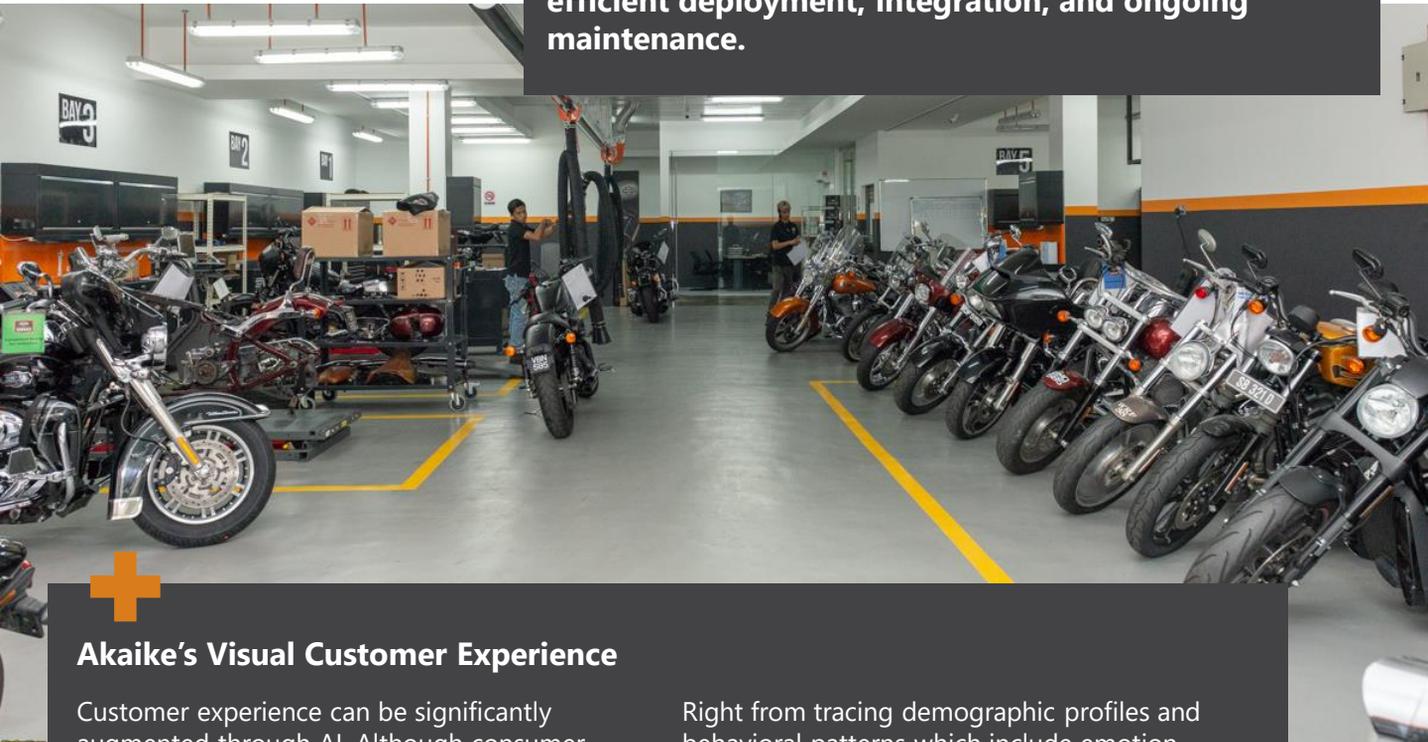
Akaike's Visual Customer Experience

Customer experience can be significantly augmented through AI. Although consumer-facing companies globally are using AI to enhance customer experience, the challenge is to move beyond automation of customer interactions and provide a holistic experience.

By leveraging Vision AI and Deep Learning models, Akaike doesn't merely automate but tailors solutions that track and measure customer journeys in retail spaces of any size.

Right from tracing demographic profiles and behavioral patterns which include emotion detection, footfall traffic, and heat maps to spotting brand anomalies in a physical space, our AI capabilities provide a 360-degree view of how a customer interacts with a brand. Data-driven insights of the brand visuals, empower enterprises to refine their marketing strategies, re-evaluate marketing spend, streamline sales strategies, and control business and operating costs.

About Akaike
At Akaike, we love solving problems that positively impact the quality of human life. The more complex they are, the better.

We apply ML and DL to Computer Vision, NLP, and Reinforcement Learning taking inspiration from the Akaike Information Criterion (AIC) to build and deploy efficient AI models with maximum impact across healthcare, retail, manufacturing, media and other domains.

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