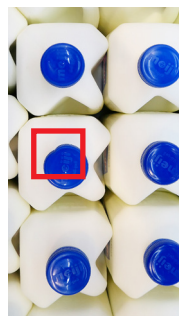# LandingLens: Artificial Intelligence and Food and Beverage Packaging Inspection

Amidst the increased demand for food and beverage packaging inspection systems, paired with the expectation of superior quality standards, the automation inspection industry faces more and more challenges. One of the biggest challenges is how to increase the quality and speed of inspections while reducing cost in an industry with goods and products that come in every size, shape, and color. Manual inspections raise labor costs, don't necessarily improve quality, and have speed constraints. As industries adopt automation to solve problems and grow, inspections will have to adapt to keep up and ensure they continue to meet product quality standards and packaging regulations. Deep learning can help.

> *"Defining and logging defects helps improve a deep-learning system, while AI software can learn to **advance inspection quality and reduce the ambiguity** between defects and false positives."*

Kai
Vice President of Product
Landing AI

Food and Beverage Packaging Inspection Challenges

The inherent variety in the physical composition of foods and beverages makes manual visual inspection time-consuming. Automated solutions such as machine vision work well with highly repeatable parts, where edges and shapes are easy to identify. The organic shapes of and lack of consistency among the many different food products, however, makes it difficult to train a system or to create a database of every possible shape or shade of products and defects.

To overcome these obstacles, many companies are turning to artificial intelligence (AI) solutions such as deep learning. While these solutions seem complex, they have evolved to integrate easily into production lines to address challenges in food and beverage packaging inspection. Deep-learning solutions deliver a healthy blend of tools to keep costs down while increasing the rate of packaging inspections without the constraints found in other systems.

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Turning to Deep Learning

Generally, automated inspection has immediate benefits in terms of increasing operational efficiency. It leads to high-throughput improvements that aren't possible with manual inspections. While machine vision and AI solutions offer high-speed inspection, AI solutions provide more features and opportunities for system enhancements. Defining and logging defects helps improve a deep-learning system, while AI software can learn to advance inspection quality and reduce the ambiguity between defects and false positives. In an industry with inconsistent products, it is necessary to understand what parameters are passable while also reducing false positives, notifications, and lead times.

Deep-learning mechanisms can work with current systems for analysis, monitoring, and verification. Deep-learning–based automation can improve accuracy, operational speeds, and efficiency to meet important goals or ROIs. As the goal of virtually every business is to grow, the ability to produce more and work within new parameters without changing the entire system allows for growth without wasting time and resources.
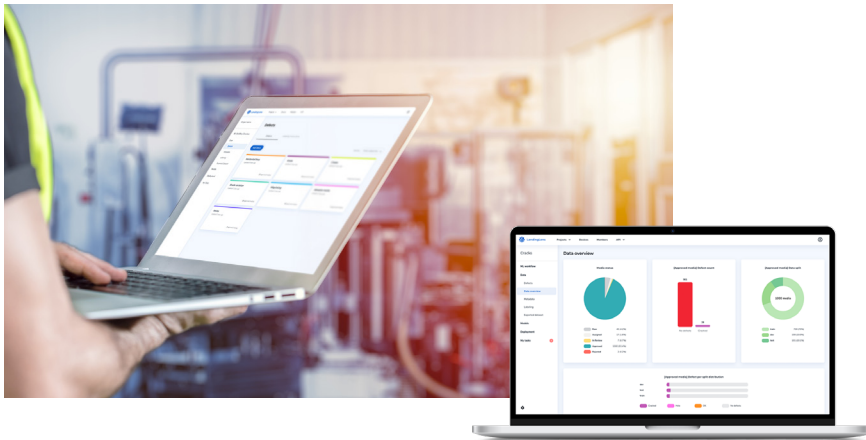
The LandingLens Difference

Along with features such as product sorting and grading, classifying, and visual inspection, LandingLens adds its own assortment of industry-specific features. For packaged goods, this includes easily scalable and modifiable deep-learning solutions capable of working with manual operations and machine-driven automation to produce an ideal end-to-end workflow. For example, LandingLens software provides features for easily defining defects, as well as smart tagging tools to reduce ambiguity, increase cross-functional collaboration, and improve labeling. Other features track products, present data, and analyze production — delivering advanced deep-learning solutions in a user-friendly, scalable platform that can improve inspection and production lines without uprooting existing working systems.