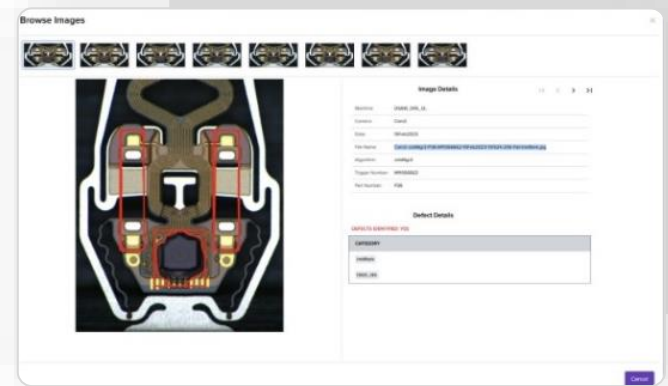**⋀⋁ SymphonyAI**

IRIS Vision AI

Redefining vision-based inspection with actionable insights for unmatched accuracy

In manufacturing facilities, where hundreds to thousands of products can be assembled per hour, manual quality checks limit the number of rigorously inspected products to ensure impeccable quality standards. In large facilities, with numerous items moving through the production lines, detecting flaws becomes an intricate challenge. While the process is complex, it can be revolutionized by introducing AI and ML-based Machine Vision technologies. Experience the future of inspection with automated Machine Vision. Move from manual product inspections to a system that continuously inspects products in real-time, identifying and cataloging defects with high precision. This innovative solution not only streamlines operations but also relieves the burden on human resources, allowing them to focus on other important tasks.

Challenges faced by manufacturers

- **Manual quality checks:**
  Traditional inspection methods often involve manual processes, leading to the inability to monitor all products, inconsistent product quality, and increased costs due to late identification of quality issues. Conducting manual quality checks can also be expensive, requiring additional manpower and designated space, among other essential resources.

- **Insufficient detection of defects (false positives/false negatives):**
  Traditional inspection methods tend to miss hidden or complex defects in products, resulting in the delivery of defective products, higher rework costs, and potential harm to the brand's

image. Additionally, relying on manual inspection and rule-based systems can result in excessive false reject rates, causing more waste and elevated production expenses. This can also lead to false positives being detected, ultimately leading to the release of faulty products into the market.

- **Data silos:**
  Legacy systems frequently operate in silos, resulting in fragmented data and limited connectivity between stages of the manufacturing process. This gap restricts the ability to make decisions in real-time, identify quality issues early-on, and improve overall operational efficiency.

SymphonyAI's innovative approach—IRIS Vision AI

IRIS Vision AI uses image acquisition and deep learning analytics to improve manufacturing inspection accuracy.

It fully utilizes breakthroughs in AI and parallel computing. This groundbreaking technology goes beyond visual information detection by providing actionable insights to improve quality, yield, and cycle time.

Previously, vision systems were passive in the manufacturing process and prone to providing false or missed alerts. Rich information captured by the vision system and augmented with AI becomes a real-time proactive part of the production line process with IRIS Vision AI. With real-time clustering, classification, and forecasting of key KPIs, IRIS Vision AI identifies potential problem areas early and continuously steers production to operate at peak efficiency.

IRIS Vision AI can integrate process machines and optical inspections into production lines to drive faster and more accurate decisions during the manufacturing process.

Taking advantage of the most recent advances in GPU computing, IRIS Vision AI subtly transforms visual inputs to provide real-time inferences. It is offered in a SaaS, private cloud, or on-premises architecture.

Why IRIS Vision AI

1. **Enhanced precision and accuracy:** Accurately detect and categorize intricate defects that don't follow a pattern, ensuring even non-linear irregularities are reliably detected.

2. **Automated self-learning system:** To maintain high inspection accuracy, the system operates autonomously, continuously learning and adapting without needing manual intervention such as retraining or specific feature selection. This self-learning capability ensures that IRIS Vision AI evolves and maintains high accuracy over time, making it highly efficient and adaptable.

3. **Prescriptions to minimize future defects:** Using deep learning digital twins, the IRIS Vision AI not only identifies current defects but also generates recommendations and setpoint advisories that mitigate the occurrence of future defects. These auto-generated recommendations enable you to improve the manufacturing process to prevent defects, resulting in higher product quality and fewer production issues.

Product capabilities

1. **Image acquisition:** Connects seamlessly with various optical inspection systems and camera devices, ensuring a broad range of image acquisition capabilities.

2. **Pre-built vision inspection templates:** Provides out-of-the-box templates that facilitate setup, training, and deployment in production by offering standardized models for vision inspection.

3. **Anomaly detection and prediction:** Utilizes advanced AI models to identify anomalies and predict potential issues, leveraging deep learning technology for accurate forecasts.

4. **Real-time quality assessment:** Monitors production quality instantly by automatically detecting defects, evaluating production unit health, and sending alerts and notifications when necessary.

5. **Automated defect classification:** AI models combine live image data with operational data to precisely classify defects and facilitate sorting processes.

6. **Deep forecasting:** Integrates deep learning AI models with image-based AI to forecast quality levels and detect early signs of potential issues.

7. **Soft-sensing:** Monitors critical process parameters in real-time using soft-sensing capabilities to ensure optimal production conditions.

8. **Optimization:** Offers real-time advisories for process optimization, enabling production to operate efficiently.

9. **Model management:** Automatically re-trains models for anomaly detection, forecasting, soft-sensing, and optimization, streamlining the management process.

10. **MLOps, continuous integration, continuous deployment:** Ensures seamless integration and deployment of updates and enhancements without burdening end-users or IT staff, maintaining a continuous improvement cycle.

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IRIS Vision AI Step-by-Step
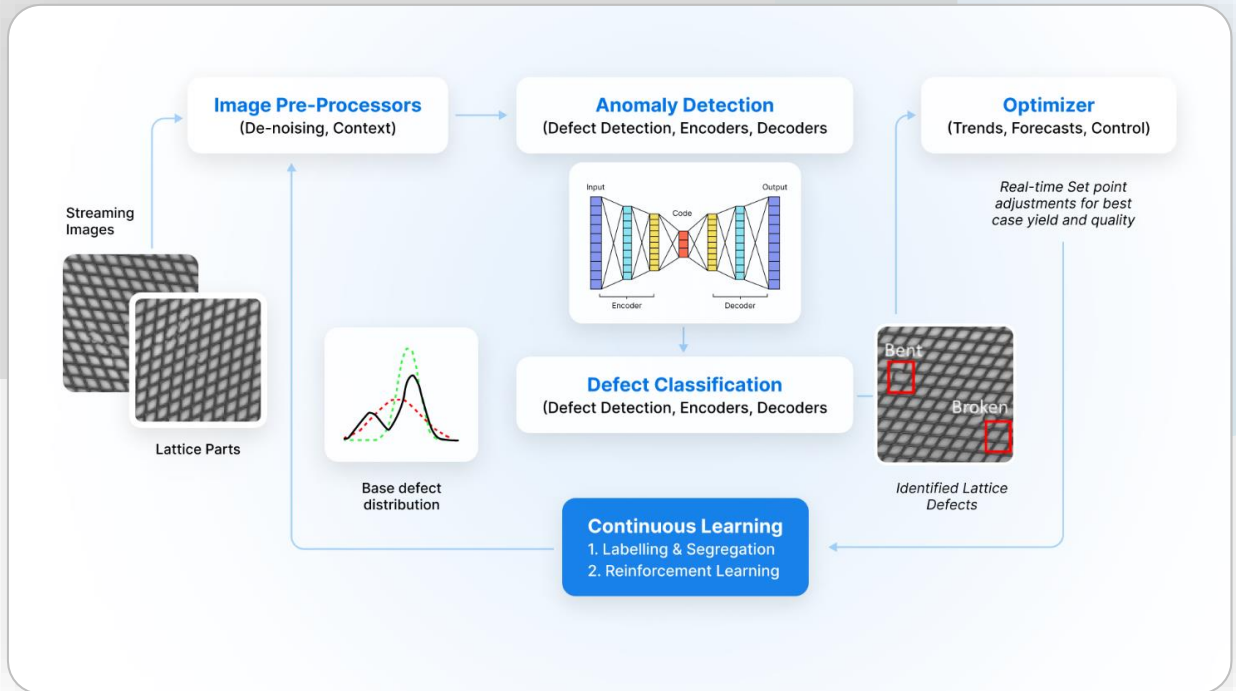
About SymphonyAI

SymphonyAI is building the leading enterprise AI SaaS company for digital transformation across the most critical and resilient growth verticals, including retail, consumer packaged goods, finance, manufacturing, media, and IT/enterprise service management. SymphonyAI verticals have many leading enterprises as clients. Since its founding in 2017, SymphonyAI has grown rapidly to 3,000 talented leaders, data scientists, and other professionals. SymphonyAI is a SAIGroup company, backed by a $1billion commitment from successful entrepreneur and philanthropist Dr. Romesh Wadhwani. Learn more at www.symphonyai.com.

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