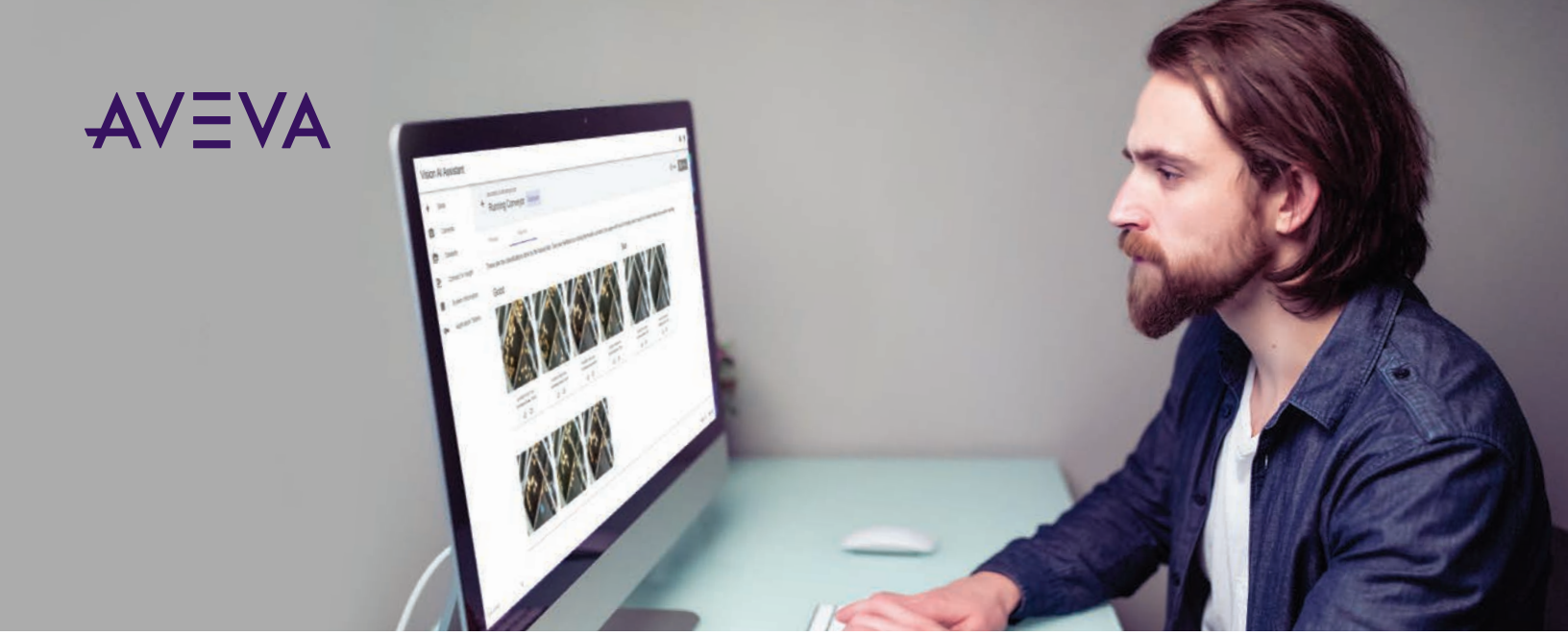
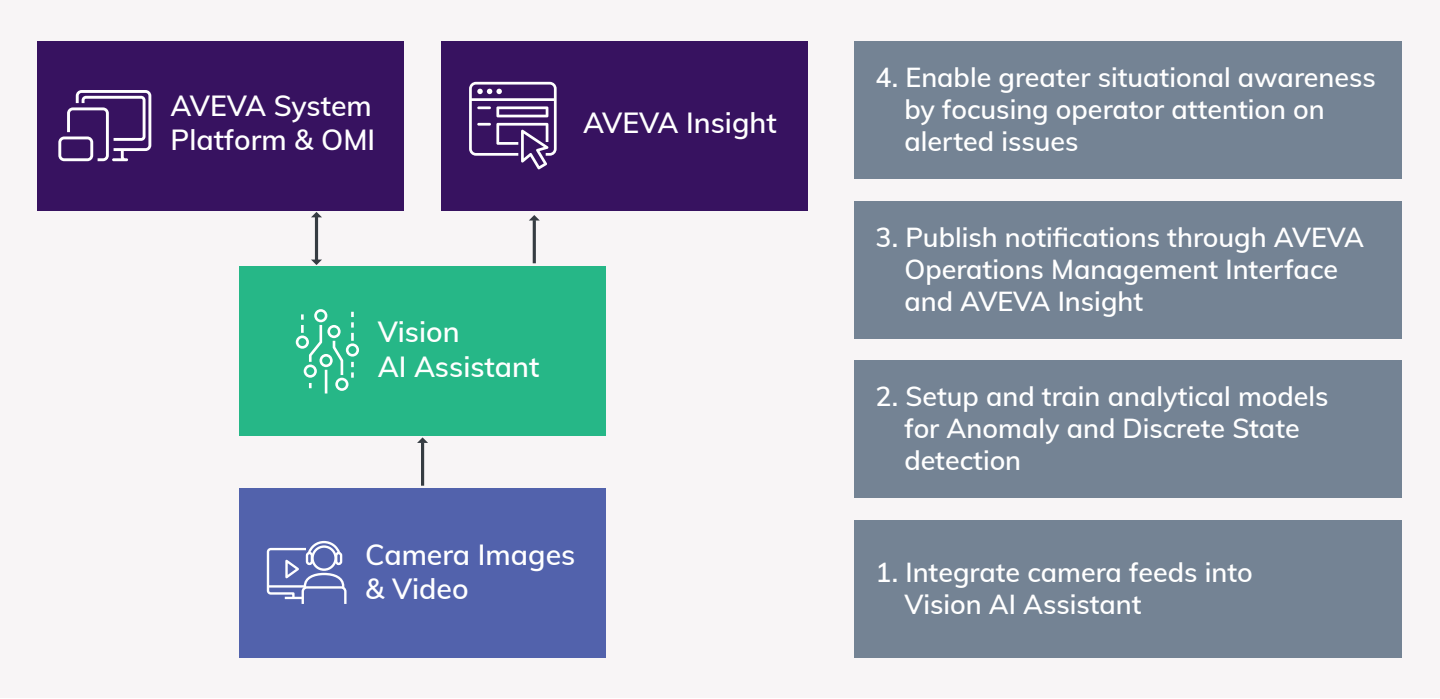


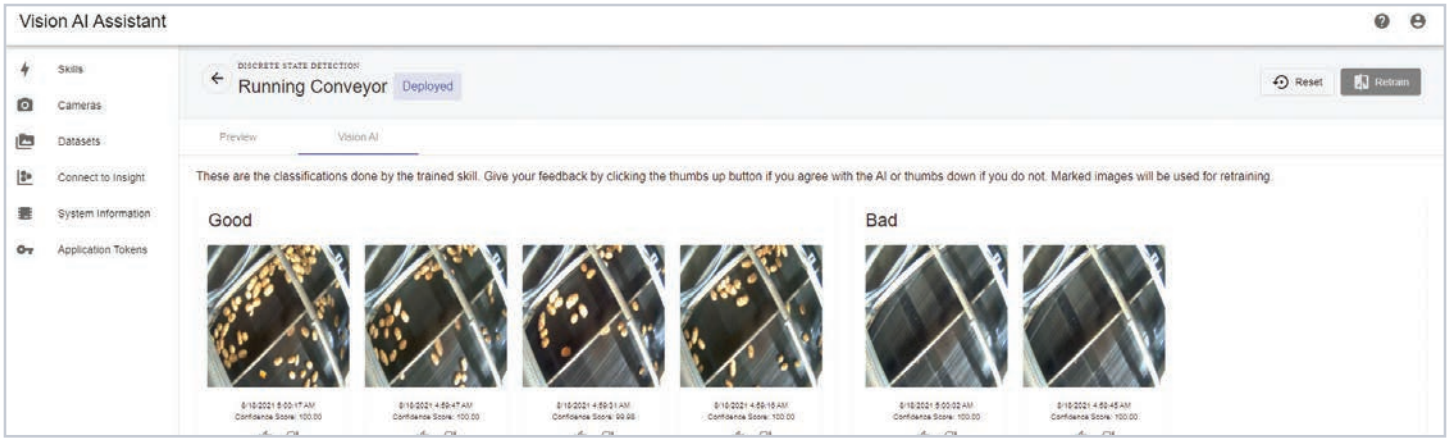
ONESHEET

Vision AI Assistant

Visual Anomaly Detection in HMI/SCADA

Use images from existing general-purpose cameras and convert them into image classification-based analytics. Vision AI Assistant monitors real-time image streams and provides alerts and notifications to operators for immediate action. Integrated with AVEVA™ System Platform & OMI and AVEVA™ Insight, the solution employs deep learning to train and deploy machine learning models from an easy-to-use web-based interface. Designed for low latency industrial environments, Vision AI Assistant enhances situational awareness by helping operators maintain attention on their tasks without continuously monitoring live camera feeds.





Anomaly detection

An Unsupervised Machine algorithm is used to learn baseline trends, then applies a statistical test to determine if a specific image represents an anomaly. The Anomaly method can detect any type of anomaly, including novel anomalies. Users provide a collection of training images that represent the expected outcome or 'good' condition, and the Vision AI Assistant determines an anomaly when real-time images do not match training images.

This detection model is useful when a wide set of images is used to represent the 'normal' state, and a vast array of negative states for which images are not readily available.

Discrete state detection

This method utilizes a Supervised Deep Learning algorithm to distinguish between two known states. Users provide training images containing examples which are already labelled or categorized, and the algorithm builds a general model of each category. The algorithm then processes the un-categorized images and attempts to assign each item to one of the pre-learned categories.

This detection model is useful when both states are known and identifiable to train the learning algorithm.

Use cases for applying Vision AI

Operations

Consider the use of infrared or thermal cameras to determine visual anomalies. For example: locating compressed air and vacuum leaks to reduce energy waste, analyzing electrical partial discharge patterns to minimize failures and downtime, or detecting an assembly line jam. Cameras can also be used in areas not suitable for humans for security or safety concerns.

Quality

Use cameras to identify quality issues or ensure quality control. For example: to determine the quality of the fluid in water treatment, to gauge if a hopper is full or empty, or in scenarios where quality control is subjective, such as identifying the color of an item.

Maintenance

Deploy cameras that can be used to continuously monitor a certain section of the plant or machinery to provide early warning notification and diagnosis of equipment issues days, weeks, or months before failure. For example: overhead transportation such as chain or cart breakage.

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