Improve Quality Inspection on the Production Line with Anomaly Recognition

The Problem

In manufacturing, having representative images of defective product is rare. Identifying defective product is critical, but a high-yield manufacturer is unlikely to produce defective items at a rate that would provide the required data. Without representative data of defective products, manufacturers face a lengthy and expensive data collection process that makes AI a formidable path to improved quality inspection.

How Neurala Addresses This Concern

Neurala has developed an approach to identifying defective products with only samples of "acceptable" products: anomaly recognition. Anomaly recognition overcomes this typical barrier in adopting vision AI in production environments.

With anomaly recognition, Neurala identifies any product that deviates from the "acceptable" images that the customer trains its system on, bypassing the significant barrier to entry that AI typically presents for competitive manufacturers. Anomaly recognition allows users to:

- Implement a vision system without defining hundreds of features to "catch" defects, as is necessary with computer vision
- Overcome imbalanced data sets
- Easily identify defective products

What Hardware Do I Need?

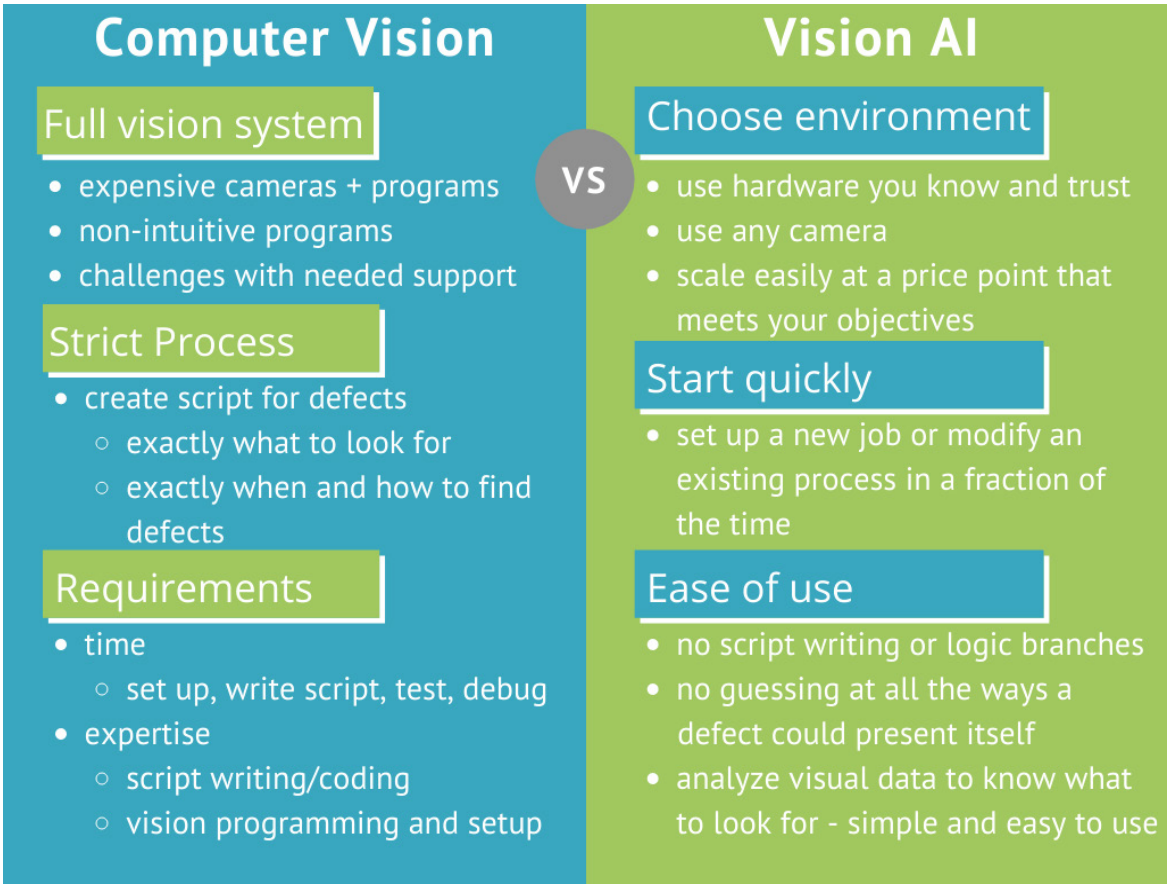
The Neurala technology is hardware agnostic and can augment any current vision inspection system, as the models are lightweight computationally to run, and can interoperate with any standard image format.

Key Benefits

Saves Time: Set up a new job or modify an existing process in a fraction of the time.

No Need for In-House Experts: To set up and deploy anomaly recognition, your team does not need in-house technical capabilities like script writing, AI expertise, or branch logic. Unlike traditional computer vision, you don't need to predict every way a defect could present itself.

Hardware agnostic: While traditional computer vision requires expensive cameras and complex integration, Neurala can seamlessly plug in to your existing production line using cameras already capturing images



Use Cases

PCBA Inspection Using traditional machine vision or AI to identify defects on a PCBA presents challenges. To train the model properly, users need to account for enormous variation in small details and defects. Because anomaly recognition can identify any aberration from the "acceptable" PCBAs, users don't need to predict every representation of a defective board. In setting like this, anomaly recognition requires less data, can handle complex parts and requires less knowledge of potential defects.

Box Filling With use cases like detecting if a box is packed correctly, anomaly recognition offers increased flexibility. Users don't have to spend a long time building a model, don't need a lot of storage space to store a model, and can create models quickly as line changes.

Contract Packaging In this setting, contract packagers need to be nimble and flexible in order to seamlessly switch their lines over to a package new product or packaging old product in different ways. By allowing them to train quickly on only "acceptable" product, anomaly recognition saves time, effort, and money.