Category

Data & AI

AI for Quality Control, Defect Detection & Root-Cause Analysis Playbook

Using AI to catch defects earlier and trace them to their actual cause, not just flag more of them

- Practitioner
- Intermediate
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- Administrator
- 03 November 2021
- 4 minute(s)

Overview

A framework for AI-driven quality control, defect detection, and root-cause analysis — computer vision and pattern-based defect detection connected to genuine root-cause investigation, avoiding the common gap where AI detects more defects without corresponding process improvement that addresses their underlying cause.

If AI-powered defect detection catches more defects than manual

inspection, isn't that automatically valuable? Catching more defects has value, but without connection to genuine root-cause analysis and process improvement, it can just mean more defective items caught (and scrapped or reworked) rather than fewer defects produced in

the first place — the larger value comes from using detection data to address underlying causes.

How does AI add value to root-cause analysis specifically, beyond

defect detection itself? AI can identify patterns across large volumes of defect data — correlating defect types with specific process conditions, equipment, or timing — that manual root-cause investigation across many individual defects couldn't practically identify at the same scale.

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