

Surface Sentinel

Small defects. Visible evidence.

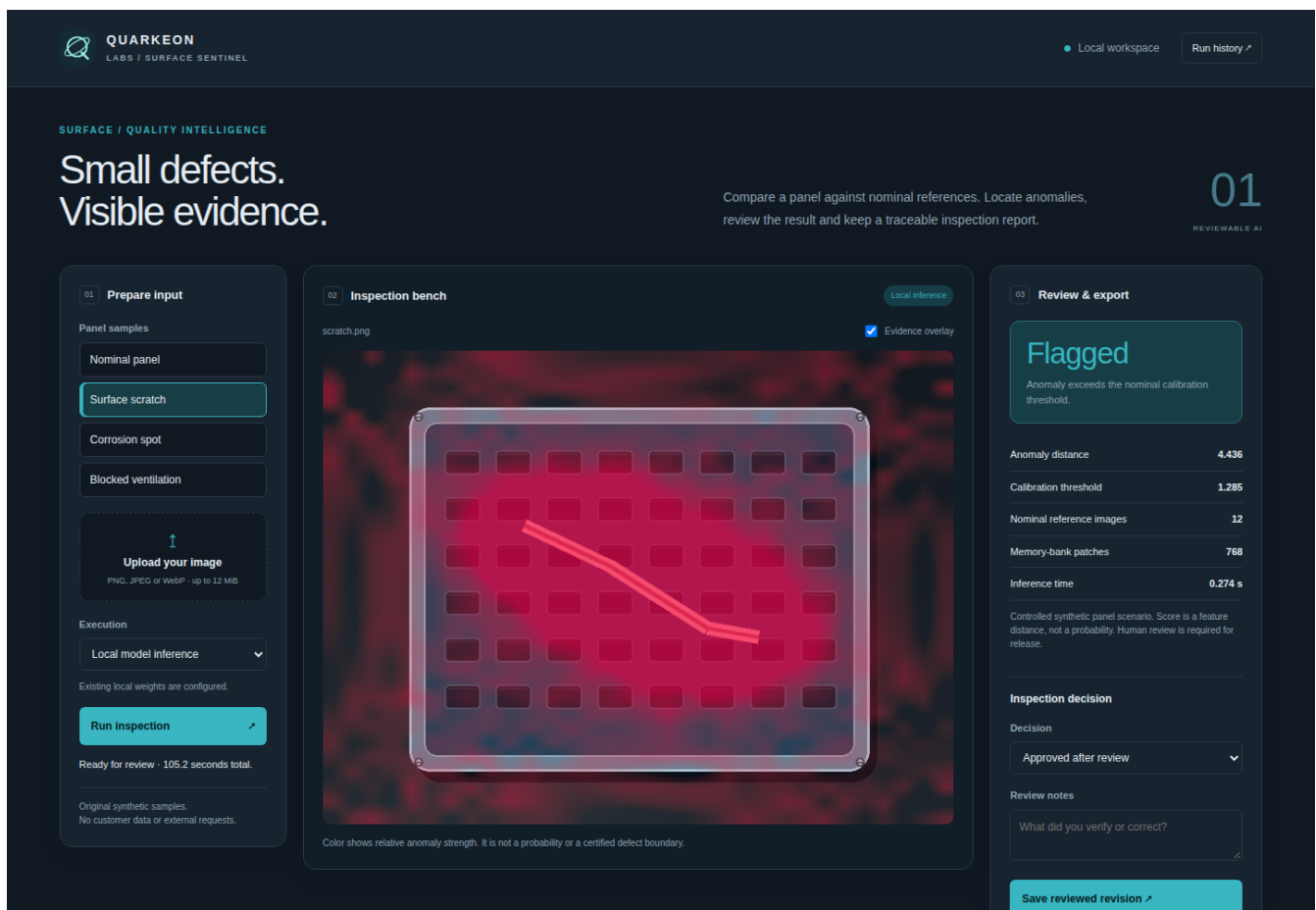
Independent portfolio demonstration. All inputs are newly created fictional documents or synthetic imagery. No customer assets or outcomes are shown.

Problem

Visual inspection needs more than an alert: a normal reference, evidence of the change and a traceable decision.

Working application

Compare synthetic panels against a normal-surface memory bank. A local ResNet18 produces anomaly distances; the reviewer inspects the heat map, records a decision and exports the evidence.



Actual app-only capture from fresh local model inference.

Measured evidence

Check	Passed / evaluated
Test panels: correct classification	16 / 16
Interface examples: correct classification	4 / 4

NVIDIA GeForce RTX 4070 Laptop GPU / 8 GB

Median / p95 complete HTTP case: 2.81 / 65.306 seconds. Includes model loading, OCR and any local queue wait.

Recorded: 2026-10-08 UTC. Exact fixture-level outputs are supplied in evaluation/results.json.

Limits

Sixteen test panels use seeds separate from the references, but the same synthetic generator. This does not measure industrial accuracy. The heat map is not certified defect segmentation.

Possible pilot

An inspection pilot with normal references, human review and a separate evaluation set.

Before implementation: Part types, tolerances, normal references, capture conditions and the cost of false positives and negatives.

Watch the English demonstration

<https://quarkeon-website.pages.dev/en/projects/surface-sentinel/>

Quarkeon Labs on Upwork