

Perspective Match

Align two images and localize visual differences.

Simulated image pairs · Recorded 2026-10-09 · CPU execution

The screenshot displays the 'Perspective Match' web application interface. The top navigation bar includes the 'QUARKEON LABS' logo, a 'Company portfolio' link, and a 'LOCAL DEMONSTRATION' button. The main header area features the title 'Perspective Match' and a subtitle 'Align two views, inspect keypoint correspondences and localize visual changes.' A progress bar shows four steps: 01 / INPUT, 02 / PROCESS, 03 / EVIDENCE, and 04 / REVIEW & EXPORT, with the first step being active.

The interface is divided into two main panels. The left panel, titled 'Choose an input', contains a 'Demonstration case' dropdown menu set to 'Missing block + color change', a thumbnail of a 'QUARKEON / PART QA' reference plate, a 'Difference threshold (grey levels)' input field set to 28, a 'Run analysis' button, and links for 'Use your own files' and 'Evaluation & limitations'. The right panel, titled 'Inspect the evidence', shows analysis results: 'Consistent correspondences' of 218, 'Reprojection error' of 0.25 px, and 'Change candidates' of 2. It features a large thumbnail of the reference plate and a grid of 20 color-coded squares (01-01 to 05-08) representing localized changes. Below the grid are tabs for 'Localized changes', 'SIFT correspondences + RANSAC', 'Rectified inspection', 'Reference', 'Inspection view', and 'Blend views'. A 'result.json' download button is at the bottom.

The problem

Comparing photographs from different viewpoints can confuse camera motion with a change in a part or print.

What the demo does

SIFT and robust geometry estimate a homography, check correspondences and overlap, rectify the view and highlight differences. A reviewer can inspect matches, blend views and download the evidence.

Recorded evidence

Check	Recorded result
Pairs with corner error below 2 px	12 of 12
Changed pairs: mask IoU above 0.75	4 of 4

Data and method

Twelve generated label pairs with known independent perspective transforms; four contain two planted changes, four include exposure offsets.

Limits that matter

Same synthetic print generator across all pairs; no real print-line validation. Homography is for planar scenes. Interpolation, parallax, reflections and occlusion can create false change candidates.

What we could build with you

A comparison and rectification workflow for print, planar-surface inspection or visual change control.

What we would agree first

Planar surface, capture, calibration, overlap, meaningful changes, lighting and rejection rules.

Evidence and contact

Video, complete evaluation and bilingual case: <https://quarkeon-website.pages.dev/en/projects/perspective-match/>

Discuss a scoped pilot: <https://www.upwork.com/agencies/2108116767018789544>

Independent demonstration, not customer work. Metrics apply only to the described inputs and checks. Photos, data and model provenance are recorded in the private application repository; public data retains its original license.