

Border detection refinement (03.03.2026)

Context

Up to now, the island detection only retrieve the outer contour of each color island. The update work to also retrieve the internal one is recorded in PR 42¹ and described in this document.

Nested contours detection update

Explanation

The current shortcomings are due to `cv2.RETR_EXTERNAL`, that do not retrieve inner contour datas. This result in islands with holes had them not cutted out.

Solution

Use `cv2.RETR_CCMP` instead of `cv2.RETR_EXTERNAL`². This method retrieves all the contours in an image. Along with that, it also applies a 2-level hierarchy to all the shapes or objects in the image.

To work with that, a new `Hierarchy` dataclass has been implemented to handle the parent/child relationships.

This updated processing induced two cases of island construction :

1. Contours with no parent and no child are making `Island` with only one outer border
2. Contours with children are making `Island` with an `inner_borders` list that record all hole contours and the outer border

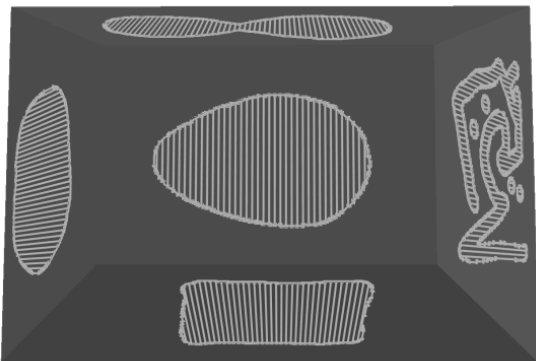


Figure 1: Before — no nested contours

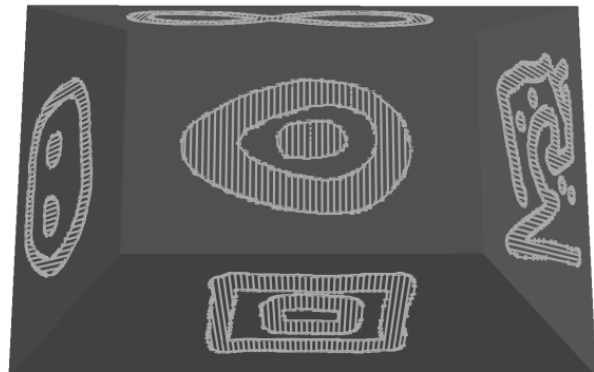


Figure 2: After — included nested contours

Conclusion

The detection is now now correctly handling the nested contours. Hole areas are excluded from the fill slicing and tracing, thus not processed further the pipeline.

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¹[PR 42 — border detection refinement](#)

²[source of information about the methods](#)