

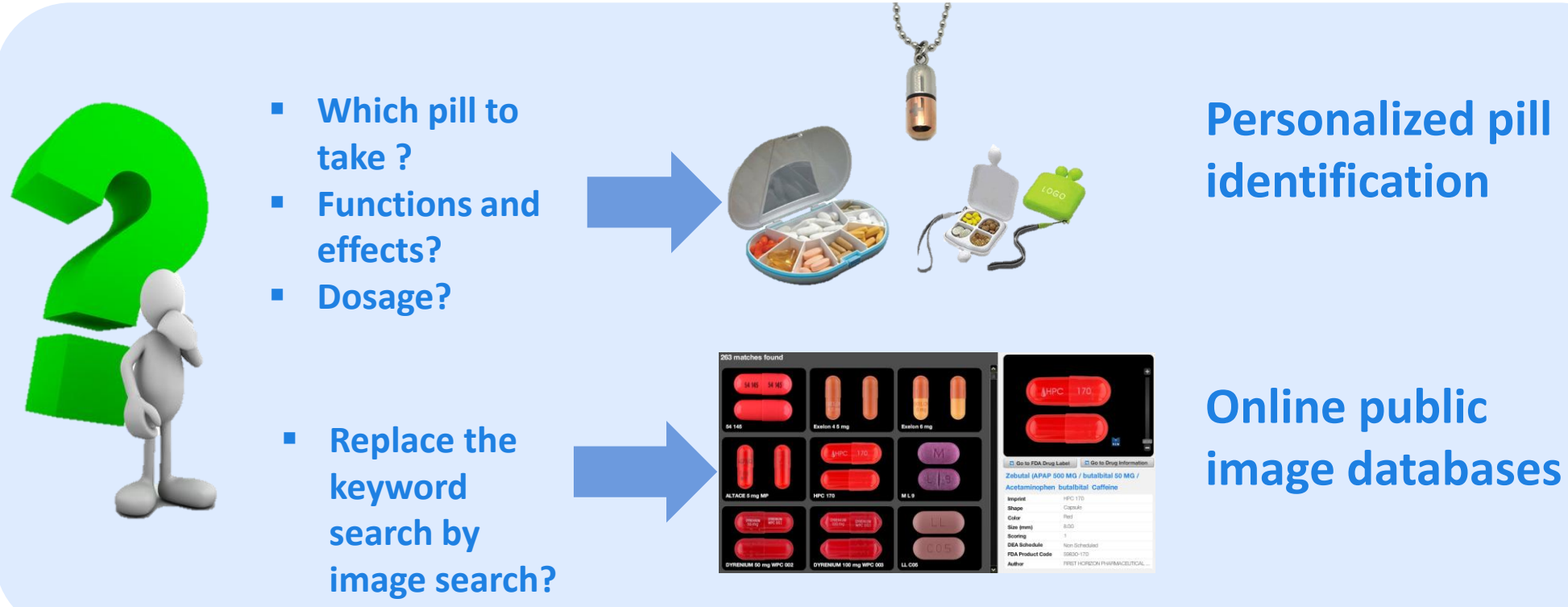
Automatic Pill Identification

ADSC Summer Intern Project 2010

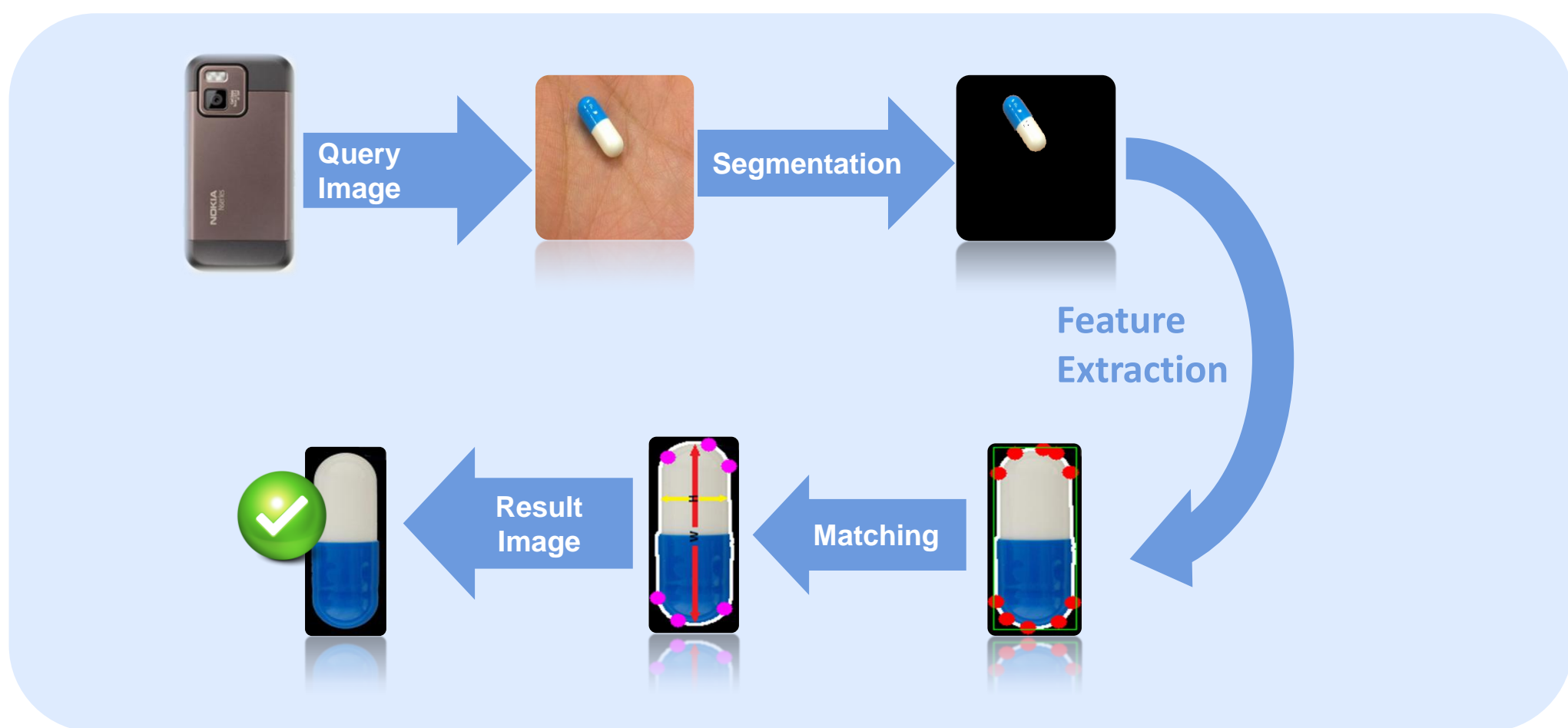
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Motivation

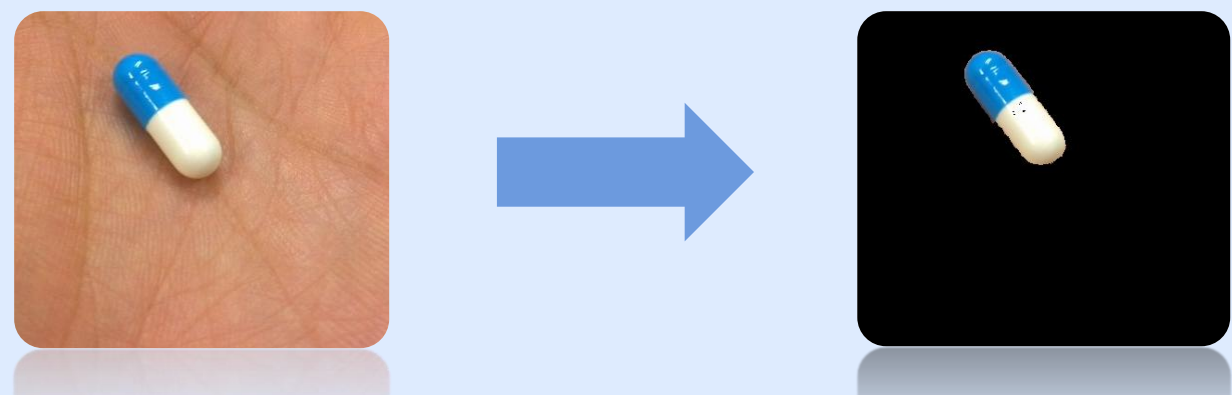


System Overview



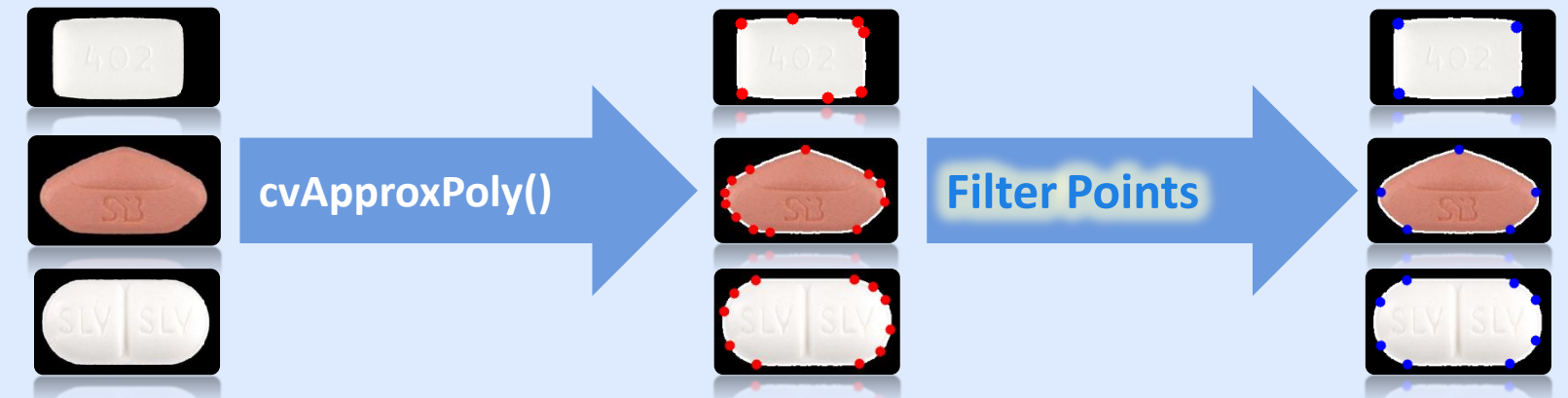
Segmentation

- Using color clustering (K-Means, etc)
- Skin color detection
- Shadow removal
- Adaptive object segmentation

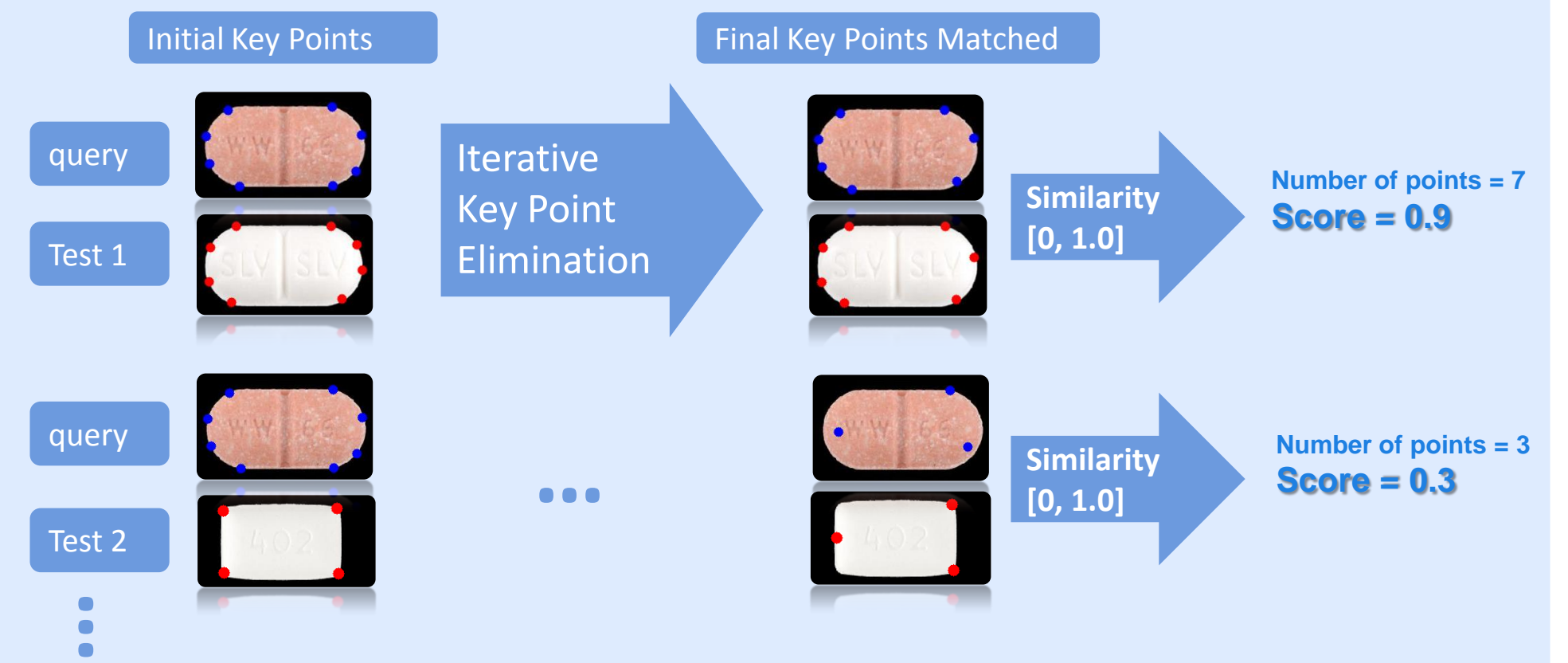


Shape Feature

Pill modeling using polygons



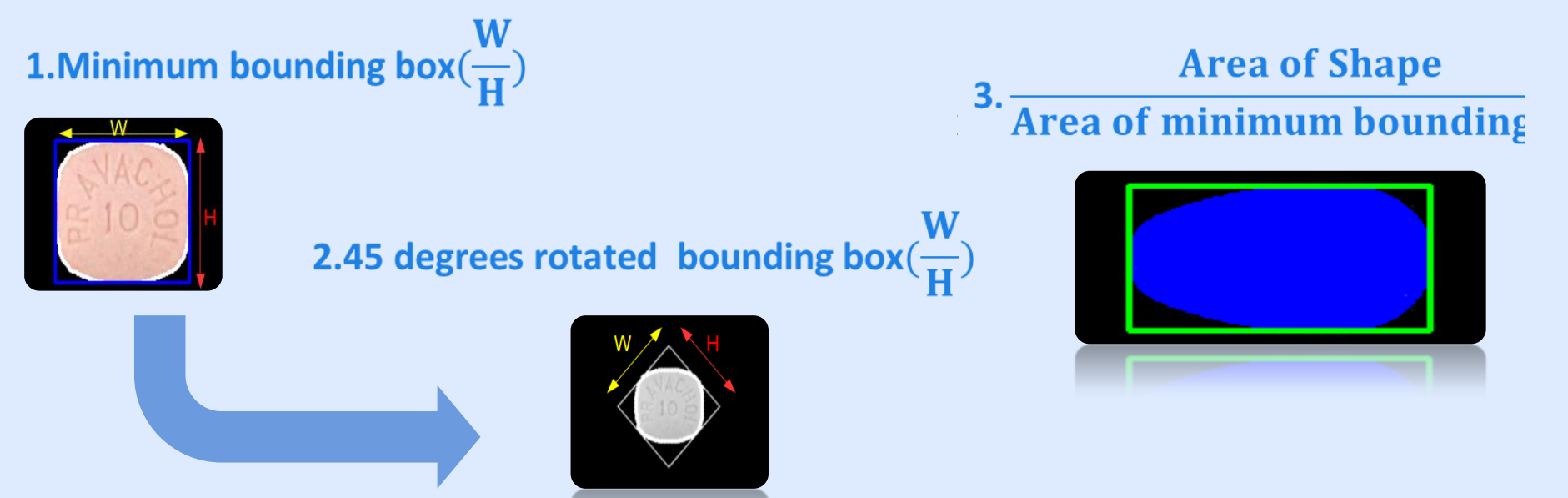
Similarity between two shapes (our proposed method)



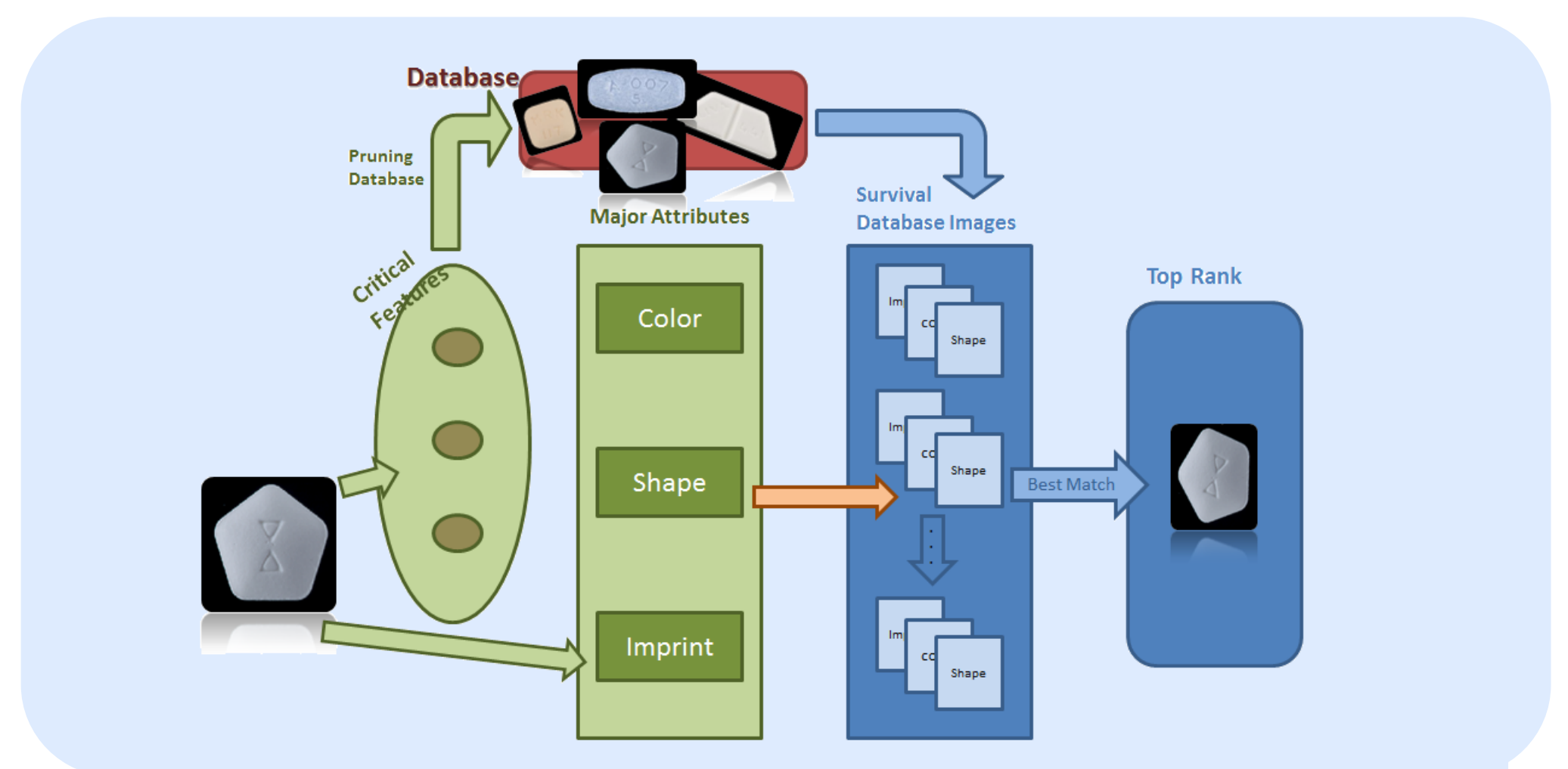
It is rotation and scale invariant.



Critical Features



Matching



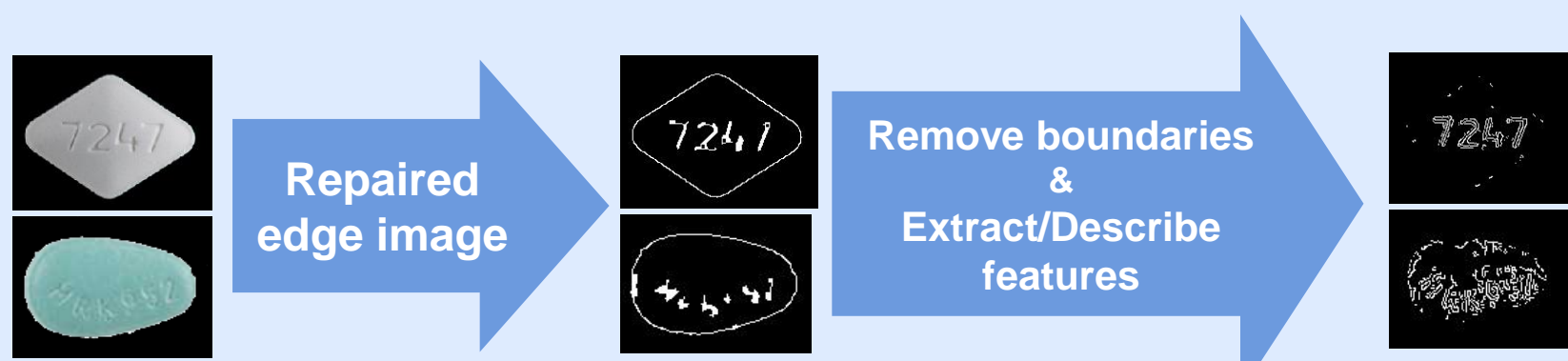
Feature Extraction

Color

- For a given pill, determine:
 - Number of major colors
 - Major color classes
- Use quantized hue and saturation values to represent colors
- Classifying pills to these three classes



Imprint Feature (Still in progress...)



Research Results (as of Sep. 3, 2010)

	Number of gallery images	Number of query images	Number of correct Answers	Accuracy	Description
1st Dataset	41	31	26	84%	Including complicated and irregular shapes
2nd Dataset	23	13	12	92%	Simple shapes e.g. circle, polygon