Feature Evaluation with High-Resolution Images

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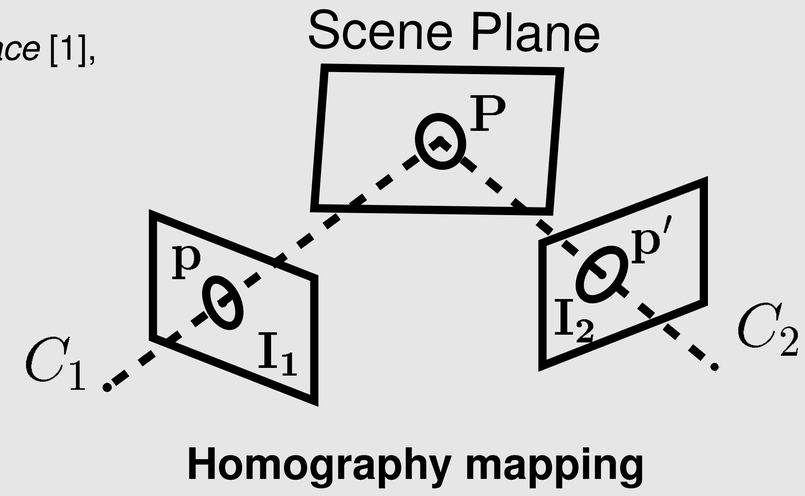
High–Resolution Benchmark [1]

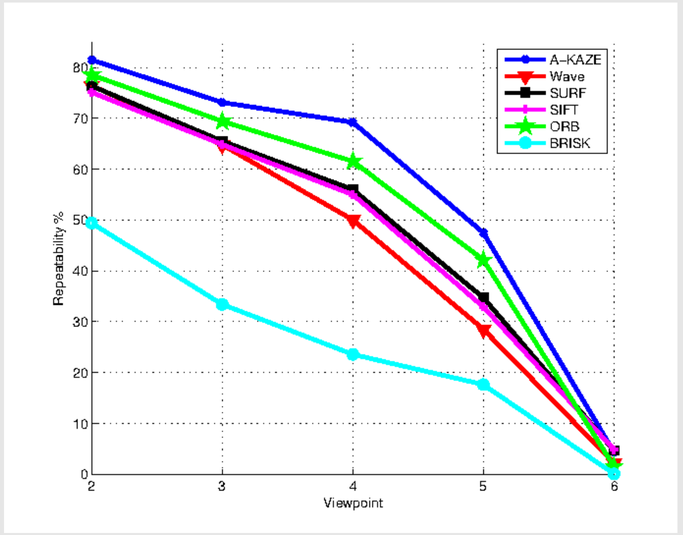
Sequence *Grace* [1], views 1,3,5,6

- Resolutions of up to 8 megapixels (1.5, 3.0, 6.0, 8.0 megapixels)
  (reference benchmark [2]: 0.5 megapixels)
- The same scene at different resolutions
- Evaluation protocols from [2]

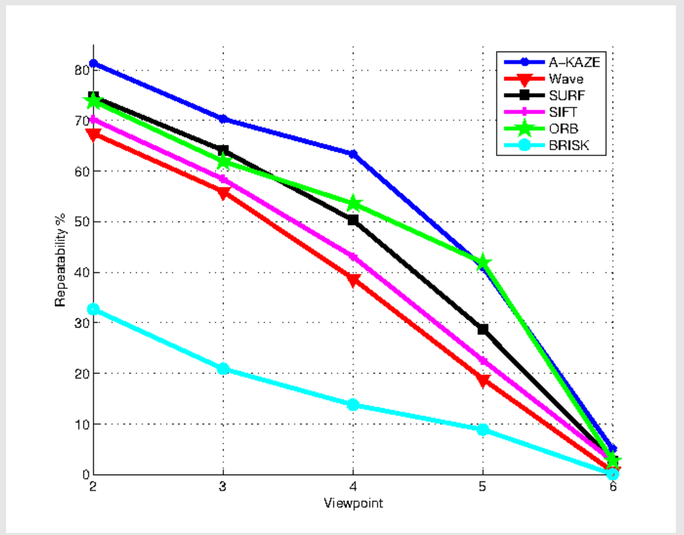


Homography mapping

Detector Evaluation: Repeatability



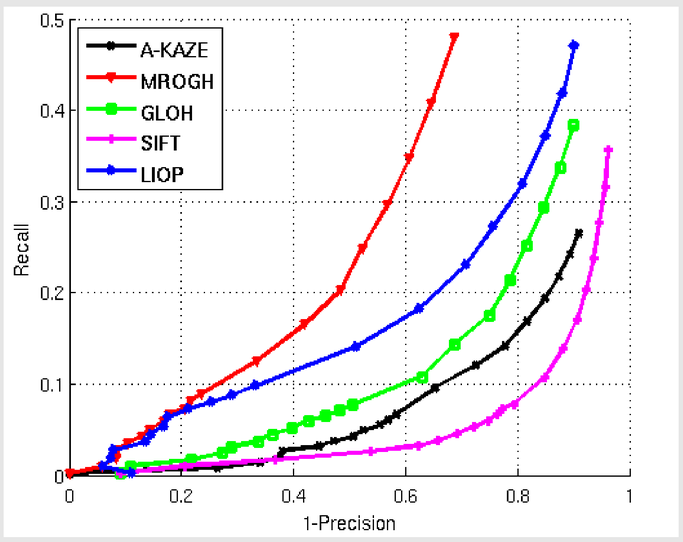
Grace (1536 × 1024)



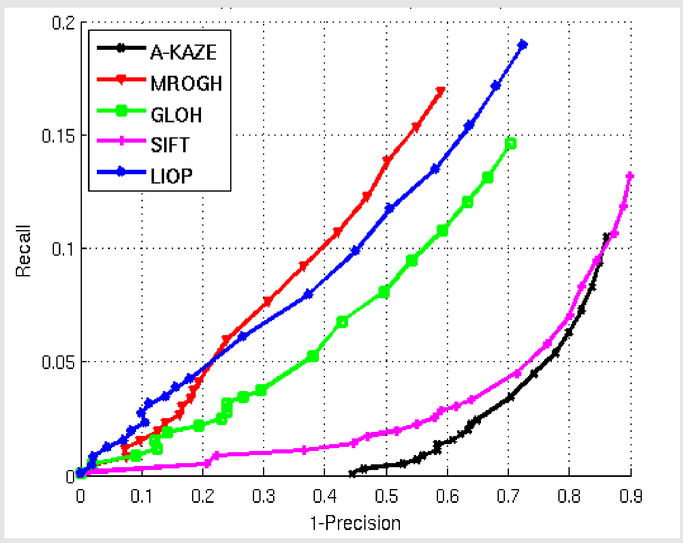
Grace (3456 × 2304)

Detector	Year	t [ms]
SIFT	2004	4.38
SURF	2006	0.54
BRISK	2011	0.99
ORB	2011	0.47
A-KAZE	2013	1.04
Wave	2013	5.58

Descriptor Evaluation: Precision / Recall



Grace 1-4 (1536 × 1024)

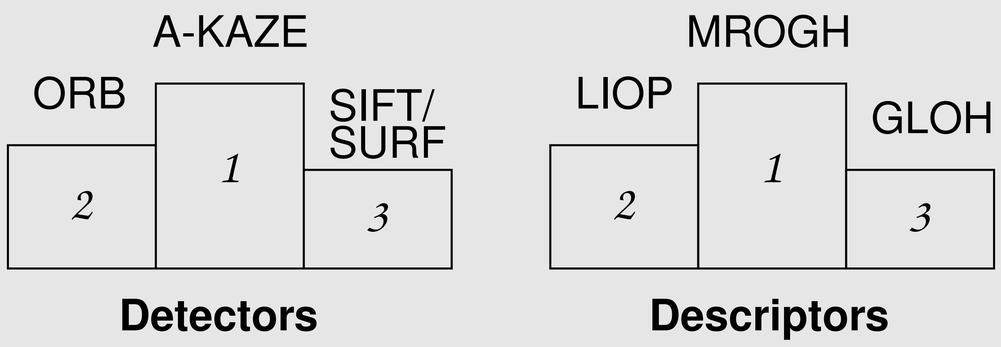


Grace 1-4 (3456 × 2304)

Descriptor	Year	d	t [ms]
SIFT	2004	128	1.74
GLOH	2005	128	1.87
MROGH	2011	192	2.35
LIOP	2011	144	1.43
A-KAZE	2013	61	7.97

Conclusions

- Detector evaluation with default parameters
- Descriptor evaluation with default parameters on A-KAZE locations
- Overall:
  - Higher resolution → lower performance in accuracy



[1] K. Cordes, B. Rosenhahn, J. Ostermann: ”High-resolution feature evaluation benchmark”, CAIP 2013
[2] K. Mikolajczyk et. al: ”A comparison of affine region detectors”, IJCV 2005

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