**Motivation & Aim**

- No standardised multi-task evaluation method for local feature descriptors.
- Result inconsistencies in previous works:
  - LIOP > SIFT [7, 10], SIFT > LIOP [12]
  - BRISK > SIFT [4, 7], SIFT > BRISK [9]
  - ORB > SIFT [8], SIFT > ORB [7]
- **New benchmark for local image descriptors**
  - Train and test split
  - Strictly defined evaluation protocol for matching, retrieval and verification task
  - Meticulously controlled for side effects such as measurement region size
- Performance of traditional descriptors is comparable to deep learning ones when carefully normalised.

**Design objectives**

Comparison to existing local descriptor benchmarks.

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</table>

**Image Sequences**


**Photometric (57 sequences)**

- 116 Sequences ■ 696 Images ■ 6 Images/sequence
- 157 000 Unique patches of 65 × 65 pixels

**Evaluator Results**

- Benchmark sequences: 116
- Evaluated descriptors: 6
- Patch verification: 65 sequences
- Image matching: 57 sequences
- Patch retrieval: 57 sequences
- Evaluated attributes: 6
- Results: mAP

**Benchmark Tasks**

- **Patch Verification**
  - Same vs Not Same
  - Evaluated descriptors: 6
  - Results: mAP

- **Image Matching**
  - Evaluated descriptors: 6
  - Results: mAP

- **Patch Retrieval**
  - Evaluated descriptors: 6
  - Results: mAP

**References**


**Source Code**

Python/MATLAB source available at: github.com/hpatches/hpatches-benchmark

**Dataset available (with original sequences):**

github.com/hpatches/hpatches-dataset

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