

TABLUTION OF DETECTOR-DESCRIPTOR COMBINATIONS AND RELEVANT DATA

Descriptor	Total Keypoints	Total Matches	Total Time(ms)	Ratio
BRISK	13423	1809	282.999	6.39224
BRIEF	13423	2483	246.815	10.0602
ORB	13423	2245	242.202	9.26913
FREAK	13423	1505	621.925	2.41991
SIFT	13423	3281	550.426	5.96084
BRISK	728	189	198.83	0.95056
BRIEF	728	225	211.158	1.06555
ORB	728	220	196.422	1.12004
FREAK	728	155	553.965	0.279801
SIFT	728	256	426.186	0.600676
BRISK	17874	2515	116.955	21.5041
BRIEF	17874	3587	55.436	64.7052
ORB	17874	3184	42.6481	74.6575
FREAK	17874	2100	501.878	4.18428
SIFT	17874	5814	980.252	5.93113
BRISK	27116	3817	672.182	5.67852
BRIEF	27116	5392	525.089	10.2687
ORB	27116	2951	538.526	5.47977
FREAK	27116	3248	952.573	3.40971
SIFT	27116	7225	3212.62	2.24894
BRISK	5064	1135	127.889	8.87488
BRIEF	5064	1060	101.906	10.4017
ORB	5064	899	148.402	6.05787
FREAK	5064	542	503.883	1.07565
SIFT	5064	1536	1663.26	0.923486
BRISK	12034	2538	1333.01	1.90397
BRIEF	12034	2879	1256.55	2.29119
ORB	12034	2039	1272.37	1.60253
FREAK	12034	2063	1715.32	1.20269
SIFT	12034	3264	1825.85	1.78766
BRISK	13862	2149	1826.26	1.17672
BRIEF	13862	2500	1837.13	1.36082
FREAK	13862	1774	2248.28	0.789047
SIFT	13862	2617	3017.08	0.867395

REMARKS:

- While using AKAZE as descriptor type, an error is thrown since 'Compute_Descriptors' function of AKAZEFeatures.cpp in OpenCV(4.1.0) requires a unique datatype.
- While using SIFT as detector type and ORB as Descriptor type, an 'OutOfMemoryError' exception is thrown by OpenCV.

TOP 3 COMBINATIONS:

As seen in the above compiled table, the three best suited combinations are selected based on the highest matches/time ratio. They are

1. FAST detector type + ORB descriptor type with ratio = 74.65
2. FAST detector type + BRIEF descriptor type with ratio = 64.70
3. FAST detector type + BRISK descriptor type with ratio = 21.50