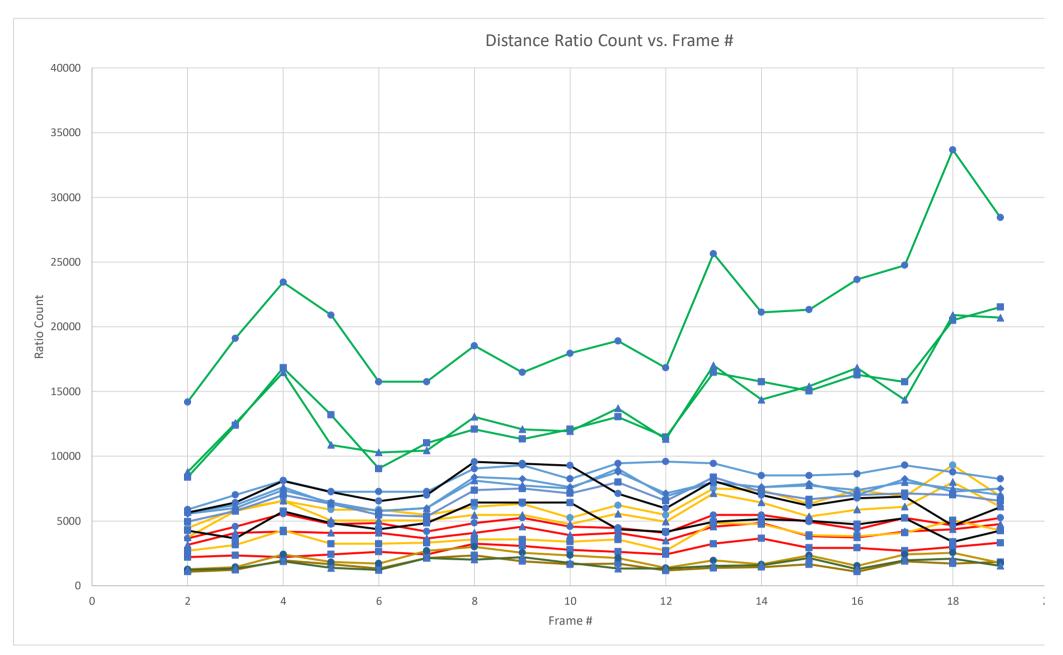
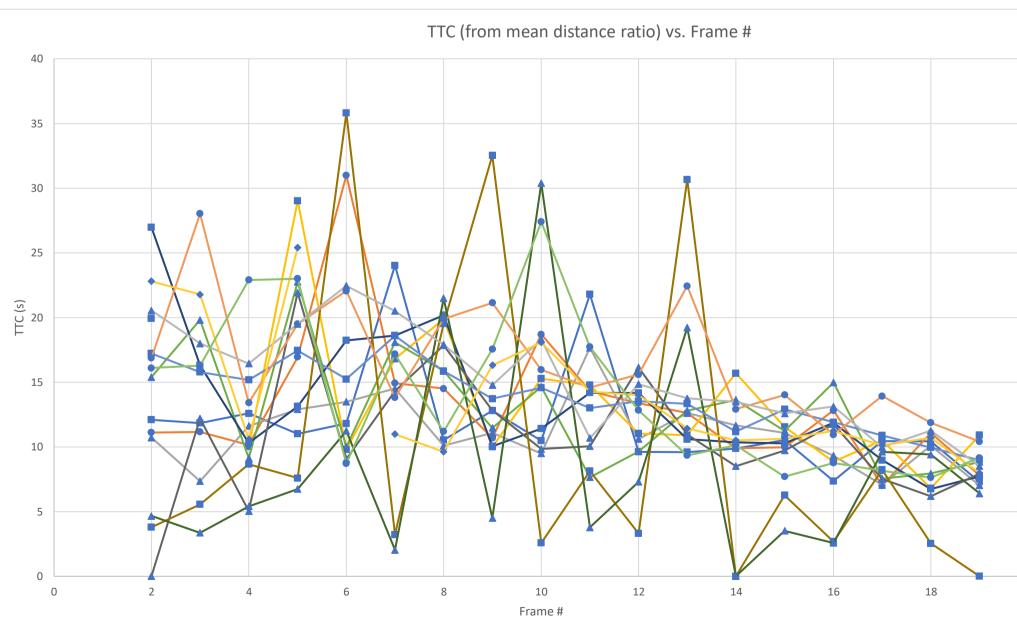
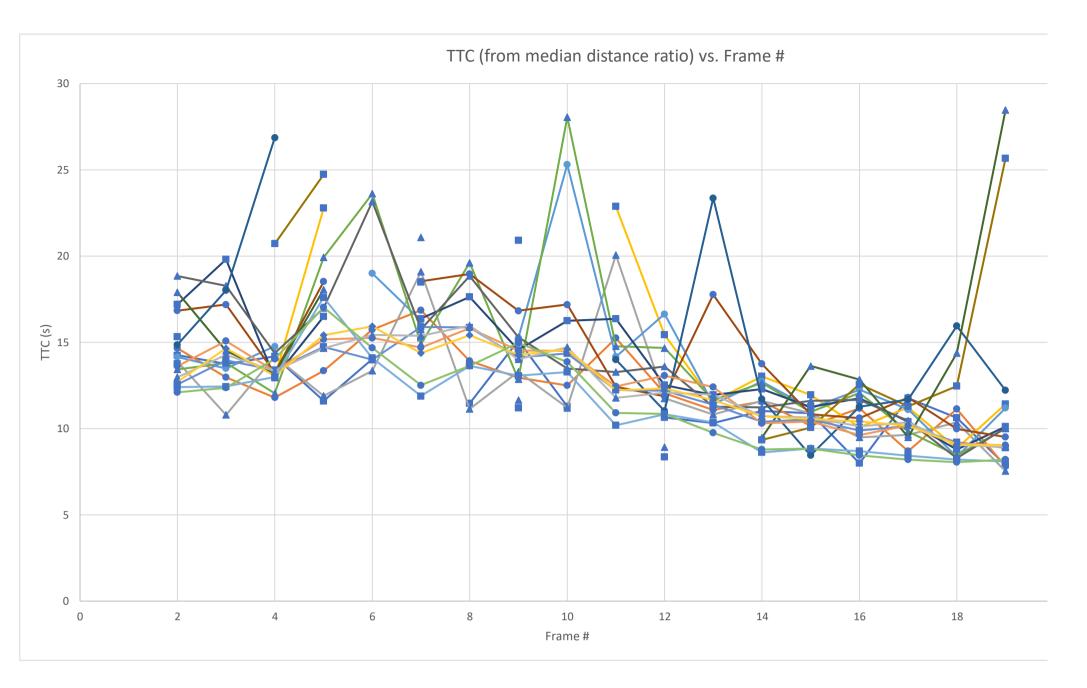
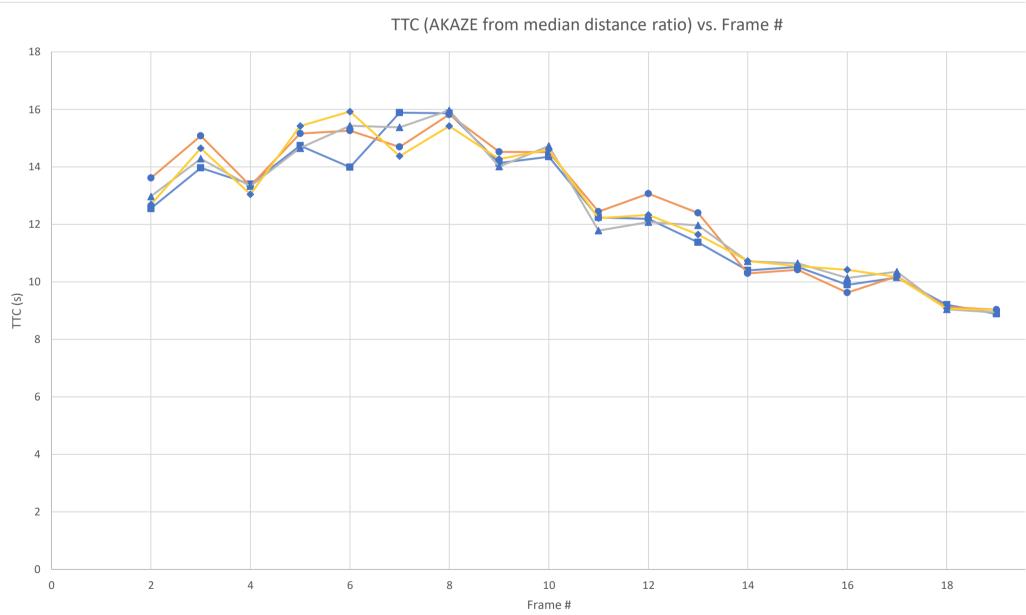
		Mean					Median		
Detector	SHITOMASI	Descriptor	BRISK		No Of Ratio	Avg Ratio	TTC		
Frame #	No Of Ratios	Avg Ratio	TTC		Detector	SHITOMAS	•		BRISK
2	2211	1.00826		0996	Frame #	No Of Rati	•		TTC
3 4	2346 2211	1.00845 1.00794		8362 5894	1 2		1.00 1.00		14.2515 13.7572
5	2415	1.00909		0036	3		1.00		14.1861
6	2628	1.00847		8048	4		1.00		11.6
7	2415	1.00416	24	1.027	5		1.00	713	14.028
8	3240			5365	6		1.00		
9	3081	1.00781		7988	7		1.00		11.4596
10 11	2775 2628	1.00955 1.00459).471 L.799	8 9	3081 2775	1.00 1.00		15.1041 11.2894
12	2415	1.0104		1463	10		1.00		11.2054
13	3240	1.01042	9.60	0122	11		1.0	094	10.6403
14	3655	1.01013		7101	12		1.00		10.3187
15	2926	1.00949		5337	13		1.00		11.0138
16 17	2926 2701	1.01359 1.00956		6015 4602	14 15	2926 2926	1.00	919 125	10.8858 7.99882
18	3003	1.00936).421	16		1.0		11.7604
19	3321			0344	17		1.00		10.6212
Detector	SHITOMASI	Descriptor	BRIEF		18	3321	1.01	268	7.88439
Frame #	No Of Ratios	Avg Ratio	TTC		Detector	SHITOMAS	•		BRIEF
2	3655	1.009		1151	Frame #	No Of Rati	•		TTC
3 4	4560 5565	1.00897 1.00985		l.153 1472	1 2		1.00 1.00		14.6612 12.9719
5	4753	1.00983		9368	3		1.00		11.8049
6	4851	1.00323		0.992	4		1.00		13.3479
7	4186	1.0067	14.9	9215	5	4851	1.00	636	15.7337
8	4851	1.00689		5089	6		1.00		16.8615
9	5253	1.00937		6777	7		1.00		13.9238
10 11	4560 4465	1.00535 1.00699		7001 1.315	8 9	5253 4560	1.00	772 008	12.9487 12.504
12	4095	1.00699		3808	9 10		1.00		15.2389
13	5460			6304	11		1.00		12.0367
14	5460	1.01012	9.8	8833	12	5460	1.00	902	11.0804
15	4950			7128	13		1.00		11.5636
16	4371	1.0078		8131	14		1.00		10.1656
17 18	5253 4656	1.01429 1.00902		9988 0871	15 16	4371 5253	1.00	895 115	11.1774 8.69767
19	5253			0871 9244	16		1.00		11.1303
Detector	SHITOMASI	Descriptor	ORB	J	18		1.01		7.80726
Frame #	No Of Ratios	Avg Ratio	TTC		Detector	SHITOMAS	Descriptor		ORB
2	3160			7228	Frame #	No Of Rati	-		TTC
3	4095	1.01362		4338	1			072	13.889
4 5	4186 4095	1.0086 1.00775		6248 9098	2		1.00 1.00		10.8013 14.1821
6	4095	1.00773		4908	4		1.00		11.8915
7	3655	1.00689		5077	5		1.00		13.3604
8	4095	1.00991	10	0.091	6	3655	1.00	524	19.0943
9	4560			0709	7		1.00		11.1376
10	3916	1.01053		0031	8		1.00		13.3032
11 12	4095 3486	1.00566 1.00942		7.664 6151	9 10	3916 4095	1.00 1.00		11.2023 20.0618
13	4560			6103	11		1.00		11.7534
14	4851	1.00858		6504	12		1.00		10.8148
15	3828	1.00902		0873	13		1.00		11.6034
16	3741	1.01072		2407	14		1.00		10.8858
17	4186	1.01416		6009	15 16		1.01		9.48797
18 19	4371 4753	1.00991 1.01424		0862 2112	16 17		1.01 1.00		9.64653 10.3634
Detector			BRISK		18		1.01		7.53456
Frame #		•	TTC		Detector	FAST	Descriptor		BRISK
2	2701		19.9	9278	Frame #	No Of Rati	-		TTC
3	3160			0076	1		1.00		15.3147
4	4278 3240			0371 0248	2		1.00 1.00		12 0020
5 6	3240 3240			0248 8056	3 4		1.00		13.0039 22.7899
7	3321	1.00595		8008	5	3240	1.00	1	,055
8	3570			8607	6		1.00		15.2452
9	3570			0009	7		1.00		
10	3403	1.00655		2699	8		1.00		11.1975
11	3570	1.00677	14.	7682	9	3403	1.00	5 52	





12	2704	1 00006	11 0224	10	2570	4 00427 22 0727
12		1.00906	11.0334	10	3570	1.00437 22.8737
13	4851	1.00918	10.8959	11	2701	1.00648 15.4412
14	4753	1.00637	15.6945	12	4851	1.00865 11.5668
15	3916	1.00866	11.5486	13	4753	1.00768 13.0277
16	3828	1.01129	8.85881	14	3916	1.00837 11.9446
17	4095	1.00952	10.5003	15	3828	1.00993 10.0735
18	5050	1.0147	6.80332	16	4095	1.0089 11.2304
19	4278	1.00917	10.9031	17	5050	1.01129 8.85581
Detector		Descriptor	BRIEF	18	4278	1.00876 11.4201
Frame #	No Of Ratios	Avg Ratio	TTC	Detector	FAST Descripto	or BRIEF
2	4465	1.00251	39.8123	Frame #	No Of Rati Avg Ration	o TTC
3	5886	1.00716	13.9711	1	4465	1.00707 14.1514
4	6555	1.00799	12.5229	2	5886	1.00742 13.4851
5	5886	1.00326	30.7198	3	6555	1.00677 14.7628
6	5886	1.01259	7.94463	4	5886	1.0035
7	5460	1.0044	22.7416	5	5886	1.00527 18.9903
8	6105	1.00225	44.4301	6	5460	1.00614 16.2739
9	6328	1.00357	28.0457	7	6105	1.00295
10	5253	1.00575	17.4054	8	6328	1.00656 15.2437
11	6216	1.01307	7.65336	9	5253	1.00395 25.3006
12		1.00533	18.757	10	6216	1.00706 14.1601
13	7503	1.00807	12.3943	11	5460	1.00601 16.6385
14	7381	1.00712	14.0396	12	7503	1.00875 11.4231
15	6328	1.00712	13.632	13	7381	1.00785 12.7336
16	7381	1.00635	15.7414	14	6328	1.00895 11.1762
17	6903	1.01099	9.09697	15	7381	1.00893 11.1702
	9316	1.01099		16		
18			8.44078		6903	
19	6903	1.00964	10.3732	17	9316	1.01195 8.36974
Detector		Descriptor	ORB	18	6903	1.00894 11.1887
Frame #	No Of Ratios	Avg Ratio	TTC	Detector		
2		1.0065			No Of Rati Avg Rati	
3	5778	1.00505	19.8095	1	3741	1.00745 13.4305
4	6555	1.01096	9.12576	2	5778	1.00724 13.8123
5	5050	1.0044	22.7522	3	6555	1.0083 12.054
6	5050	1.00999	10.0053	4	5050	1.00502 19.9276
7	5050	1.00553	18.0863	5	5050	1.00424 23.6126
8	5460	1.0063	15.8667	6	5050	1.00671 14.9011
9	5460	1.00873	11.4568	7	5460	1.0051 19.6104
10	4753	1.00683	14.645	8	5460	1.00778 12.8588
11	5565	1.01306	7.65719	9	4753	1.00356 28.0573
12	4950	1.01037	9.64613	10	5565	1.00677 14.7747
13	7140	1.00781	12.8023	11	4950	1.00682 14.6693
14	6441	1.00733	13.6411	12	7140	1.00858 11.6546
15	5356	1.0089	11.2392	13	6441	1.0079 12.6532
16	5886	1.00668	14.9789	14	5356	1.00912 10.963
17	6105	1.01325	7.54577	15	5886	1.00829 12.0606
18	8001	1.01259	7.94026	16	6105	1.01017 9.83317
19	6105	1.01233	8.84589	17	8001	1.01183 8.4558
Detector		Descriptor	BRISK	18	6105	1.01001 9.9932
Frame #	No Of Ratios	Avg Ratio	TTC		BRISK Descripto	
		-				
2	8385	1.00371	26.977	Frame #	No Of Rati Avg Ratio	
3	12402	1.00613	16.314	1	8385	1.00581 17.2044
4	16836	1.00971	10.3017	2	12402	1.00505 19.8068
5	13203	1.00761	13.1392	3	16836	1.00773 12.933
6	9045	1.00549	18.2228	4	13203	1.00606 16.4899
7	11026	1.00538	18.6005	5	9045	1.00319
8	12090	1.00496	20.1674	6	11026	1.00611 16.3721
9	11325	1.00994	10.059	7	12090	1.00567 17.634
10	12090	1.00876	11.4148	8	11325	1.00687 14.5557
11	13041	1.00705	14.1911	9	12090	1.00615 16.257
12	11476	1.00706	14.1633	10	13041	1.00611 16.3706
13	16471	1.00944	10.5904	11	11476	1.00798 12.5273
14		1.00967	10.3382	12	16471	1.00837 11.9532
15	15051	1.00973	10.2788	13	15753	1.00814 12.2858
16		1.00844	11.853	14	15051	1.00888 11.2551
17	15752	1.01114	8.97737	15	16290	1.0085 11.7668
18	20502	1.01114	6.74243	16	15752	1.00962 10.3952
19	21528	1.01483	7.71299	17	20502	1.01138 8.78608
Detector		Descriptor	BRIEF 7.71299	18	21528	1.00138 8.78008
Frame #		•	TTC			
		Avg Ratio			•	
2		1.00196	51.0795	Frame #	No Of Rati Avg Ratio	
3	19109	1.00651	15.3578	1	14196	1.00594 16.8288
4	23436	1.00887	11.2689	2	19109	1.00582 17.1857
5	20910	1.00469	21.2995	3	23436	1.00756 13.2321





6	15753	1.00425	23.5259	4	20910	1.0054	18.5149
7	15753	1.00487	20.522	5	15753	1.00378	
8	18528	1.00316	31.6361	6	15753	1.0054	18.5302
9	16471	1.00474	21.1114	7	18528	1.00527	18.9604
10	17955	1.00559	17.9023	8	16471	1.00594	16.826
11	18914	1.00877	11.4082	9	17955	1.00582	17.1875
12	16836	1.00609	16.4072	10	18914	1.00805	12.4162
13	25651	1.00394	25.3741	11	16836	1.00842	11.8762
14	21115	1.0043	23.2777	12	25651	1.00563	17.758
15 16	21321 23653	1.00884 1.00847	11.3129 11.8006	13 14	21115 21321	1.00727 1.00923	13.7461 10.8388
17	23653 24752	1.00847	11.4442	15	23653	1.00923	10.6056
18	33669	1.00874	12.1174	16	24752	1.00943	11.8015
19	28441	1.01198	8.34687	17	33669	1.01002	9.98468
	BRISK		ORB	18	28441	1.01051	9.51379
Frame #	No Of Ratios	Avg Ratio	TTC	Detector	BRISK Descriptor		ORB
2	8778	31.3814	0.00329149	Frame #	No Of Rati Avg Ratio		TTC
3	12560	1.0082	12.2006	1	8778	1.00531	18.8429
4	16471	1.01984	5.04094	2	12560	1.00547	18.274
5	10878	1.00456	21.9289	3	16471	1.00696	14.3675
6	10296	1.01103	9.06516	4	10878	1.00589	16.9895
7	10440	1.00698	14.3257	5	10296	1.00432	23.1621
8 9	13041	1.0056	17.8433	6	10440	1.00635	15.7483
10	12090 11935	1.00779 1.01017	12.8296 9.83282	7 8	13041 12090	1.00531 1.00654	18.8443 15.3018
11	13695	1.01017	10.056	9	11935	1.00034	13.4793
12	11325	1.00554	16.1328	10	13695	1.00742	13.276
13	17020	1.00912	10.9599	11	11325	1.00735	13.6047
14	14365	1.01174	8.51702	12	17020	1.00888	11.2588
15	15400	1.01029	9.7153	13	14365	1.00891	11.221
16	16836	1.00852	11.7363	14	15400	1.00862	11.6022
17	14364	1.01331	7.51097	15	16836	1.00857	11.6642
18	20909	1.01617	6.18539	16	14364	1.00956	10.4611
19	20706		7.91707	17	20909	1.01207	8.28566
Detector	ORB	Descriptor	BRISK		20706	1.00996	10.043
		•		18			
Frame #	No Of Ratios	Avg Ratio	TTC	Detector	ORB Descriptor		BRISK
Frame # 2	No Of Ratios 1081	Avg Ratio 1.02638	TTC 3.79127	Detector Frame #	ORB Descriptor No Of Rati Avg Ratio		BRISK TTC
Frame # 2 3	No Of Ratios 1081 1225	Avg Ratio 1.02638 1.01799	TTC 3.79127 5.55989	Detector Frame # 1	ORB Descriptor No Of Rati Avg Ratio 1081	1.00727	BRISK
Frame # 2 3 4	No Of Ratios 1081 1225 1953	Avg Ratio 1.02638 1.01799 1.01154	TTC 3.79127 5.55989 8.66909	Detector Frame # 1 2	ORB Descriptor No Of Rati Avg Ratio 1081 1225	1.00727 1.00114	BRISK TTC 13.7589
Frame # 2 3 4 5	No Of Ratios 1081 1225 1953 1653	Avg Ratio 1.02638 1.01799 1.01154 1.01317	3.79127 5.55989 8.66909 7.59121	Detector Frame # 1 2 3	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953	1.00727 1.00114 1.00483	BRISK TTC 13.7589 20.7153
Frame # 2 3 4	No Of Ratios 1081 1225 1953 1653 1325	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279	3.79127 5.55989 8.66909 7.59121 35.7972	Detector Frame # 1 2 3 4	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653	1.00727 1.00114	BRISK TTC 13.7589
Frame # 2 3 4 5 6	No Of Ratios 1081 1225 1953 1653	Avg Ratio 1.02638 1.01799 1.01154 1.01317	3.79127 5.55989 8.66909 7.59121	Detector Frame # 1 2 3	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953	1.00727 1.00114 1.00483 1.00404	BRISK TTC 13.7589 20.7153
Frame # 2 3 4 5 6 7	No Of Ratios 1081 1225 1953 1653 1325 2144	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937	Detector Frame # 1 2 3 4 5	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325	1.00727 1.00114 1.00483 1.00404	BRISK TTC 13.7589 20.7153 24.7265
Frame # 2 3 4 5 6 7 8	No Of Ratios 1081 1225 1953 1653 1325 2144 2346	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216	Detector Frame # 1 2 3 4 5 6	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144	1.00727 1.00114 1.00483 1.00404 1	BRISK TTC 13.7589 20.7153 24.7265
Frame # 2 3 4 5 6 7 8 9 10 11	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291	Detector Frame # 1 2 3 4 5 6 7 8	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346	1.00727 1.00114 1.00483 1.00404 1 1.00541	BRISK TTC 13.7589 20.7153 24.7265 18.4947
Frame # 2 3 4 5 6 7 8 9 10 11 12	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286	Detector Frame # 1 2 3 4 5 6 7 8 9	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046
Frame # 2 3 4 5 6 7 8 9 10 11 12 13	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629	Detector Frame # 1 2 3 4 5 6 7 8 9 10	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1	BRISK TTC 13.7589 20.7153 24.7265 18.4947
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1 1.01197	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1 1.01197 1	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1 1.01197 1 1.0107	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746 1.01215	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1 1.01197 1 1.0107	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746 1.01215 1.03938 77.9308	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1 1.01197 1 1.0107 1.00994 1.00796 1.00886	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746 1.01215 1.03938 77.9308	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746 1.01215 1.03938 77.9308 Descriptor	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame #	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746 1.01215 1.03938 77.9308 Descriptor Avg Ratio 0.980012 0.994953	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746 1.01215 1.03938 77.9308 Descriptor Avg Ratio 0.980012 0.994953 0.992293 0.993807	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415 1830	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415 1830 1710	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033 1.00274	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746 1.01215 1.03938 77.9308 Descriptor Avg Ratio 0.980012 0.994953 0.992293 0.993807 0.995029 0.987608 0.99104	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415 1830 1710 2700	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033 1.00274 1.00263	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003 2555	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606 -30.8224	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415 1830 1710 2700 3003	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033 1.00274 1.00263 1.00097	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9 10	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003 2555 2346	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606 -30.8224 -10.6026	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7 8	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415 1830 1710 2700 3003 2555	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033 1.00274 1.00263 1.00097 1.00342	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003 2555	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606 -30.8224	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415 1830 1710 2700 3003	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033 1.00274 1.00263 1.00097	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9 10 11	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003 2555 2346 2145	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606 -30.8224 -10.6026 -7.4293	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7 8 9 9	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415 1830 1710 2700 3003 2555 2346	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033 1.00274 1.00263 1.00097 1.00342 1.00139	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032 26.8547
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9 10 11 12	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003 2555 2346 2145 1378	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606 -30.8224 -10.6026 -7.4293 119.756	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7 8 9 10	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415 1830 1710 2700 3003 2555 2346 2145	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00555 1.00372 1.0033 1.00555 1.00372 1.0033 1.00274 1.00263 1.00097 1.00342 1.00139 1.00714	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032 26.8547
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 19 10 11 12 13 14 15 16 17 18 19 19 10 11 12 13	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003 2555 2346 2145 1378 1953	Avg Ratio 1.02638 1.01799 1.01154 1.01317 1.00279 1.03106 1.00512 1.00307 1.0389 1.0123 1.03019 1.00326 14.2233 1.01595 1.03746 1.01215 1.03938 77.9308 Descriptor Avg Ratio 0.980012 0.994953 0.992293 0.993807 0.985029 0.987608 0.99104 0.996756 0.990568 0.990568 0.990568 0.9979959	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606 -30.8224 -10.6026 -7.4293 119.756 -4.98985	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 11 12 12 13 14 15 16 17 18 18 19 10 11 11 11 12 12 13 14 15 16 17 18 18 19 10 11 11 11 12 12 13 14 15 16 17 18 18 19 10 11 11 11 12 12 13 14 15 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	ORB	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033 1.00274 1.00263 1.00274 1.00263 1.00097 1.00342 1.00139 1.00714 1.00908	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032 26.8547
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 19 10 11 12 13 14 15 16 17 18 19 19 10 11 11 12 13 14 15 16	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003 2555 2346 2145 1378 1953 1653 2346 1539	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606 -30.8224 -10.6026 -7.4293 119.756 -4.98985 -27.6762 -11.4647 -2013.65	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	ORB	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00541 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033 1.00274 1.00263 1.00263 1.00097 1.00342 1.00139 1.00714 1.00908 1.00428 1.00428 1.00855 1.01184	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032 26.8547 13.9967 11.0165 23.3588 11.6981 8.44831
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 19 10 11 12 13 14 15 16 17 18 19 19 10 11 12 13 14 15 16 17	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003 2555 2346 2145 1378 1953 1653 2346 1539 2414	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606 -30.8224 -10.6026 -7.4293 119.756 -4.98985 -27.6762 -11.4647 -2013.65 -75.8941	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 18 19 10 11 12 13 14 15 16 17 18 18 19 10 11 12 13 14 15 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	ORB Descriptor No Of Rati Avg Ratio 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB Descriptor No Of Rati Avg Ratio 1275 1431 2415 1830 1710 2700 3003 2555 2346 2145 1378 1953 1653 2346 1539	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00478 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00555 1.00372 1.0033 1.00555 1.00372 1.0033 1.00274 1.00263 1.00097 1.00342 1.00139 1.00714 1.00908 1.00428 1.00428 1.00428 1.00888	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032 26.8547 13.9967 11.0165 23.3588 11.6981 8.44831 11.2662
Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 19 10 11 12 13 14 15 16 17 18 19 19 10 11 11 12 13 14 15 16	No Of Ratios 1081 1225 1953 1653 1325 2144 2346 1891 1653 1711 1176 1378 1431 1653 1080 1890 1710 1829 ORB No Of Ratios 1275 1431 2415 1830 1710 2700 3003 2555 2346 2145 1378 1953 1653 2346 1539	Avg Ratio	3.79127 5.55989 8.66909 7.59121 35.7972 3.21937 19.5216 32.5291 2.57091 8.13095 3.31286 30.6629 0.0075624 6.26812 2.66986 8.2302 2.53927 0.00129987 BRIEF TTC -5.00308 -19.8156 -12.9748 -16.148 -6.67954 -8.06963 -11.1606 -30.8224 -10.6026 -7.4293 119.756 -4.98985 -27.6762 -11.4647 -2013.65	Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	ORB	1.00727 1.00114 1.00483 1.00404 1 1.00541 1 1.00541 1 1.01197 1 1.0107 1.00994 1.00796 1.00886 1.00802 1.0039 1.00673 1.00555 1.00372 1.0033 1.00274 1.00263 1.00274 1.00263 1.00097 1.00342 1.00139 1.00714 1.00908 1.00428 1.00428 1.00855 1.01184	BRISK TTC 13.7589 20.7153 24.7265 18.4947 20.9046 8.35181 9.34426 10.0575 12.5669 11.2863 12.4705 25.6678 BRIEF TTC 14.8587 18.0032 26.8547 13.9967 11.0165 23.3588 11.6981 8.44831

	ODD	Dagarintan	ODD	10	1700	1 00010	12.215
Detector Frame #	ORB No Of Ratios	Descriptor Avg Ratio	ORB TTC	18 Detector		1.00819 Descriptor	12.215 ORB
2		1.02146	4.66076	Frame #	No Of Rati	•	TTC
3		1.02969	3.36855	1	1225	1.00559	17.9039
4	1891	1.0185	5.40636	2	1326	1.00689	14.5115
5	1378	1.01484	6.73667	3	1891	1.00758	13.1875
6		1.0089	11.2302	4		1.00554	18.0584
7		1.04911	2.0361	5	1224	1.00153	
8		1.00465	21.4853	6	2144	1.00474	21.0798
9 10		1.02225 1.00329	4.49471 30.371	7 8	2016 2210	1 1.00858	11 6505
10		1.00329	3.77936	9	1770	1.00838	11.6585
12		1.02040	7.29984	10	1326	1.00244	
13		1.0052	19.2129	11	1326	1.0112	8.92968
14	1596	12.873	0.0084225	12	1540	1	
15	2145	1.02843	3.51761	13	1596	1.01056	9.47182
16		1.03877	2.57919	14	2145	1.00734	13.6263
17		1.0104	9.61507	15	1274	1.00779	12.8428
18		1.01063	9.40351	16	1952	1.01053	9.49931
19 Detector		1.01562 Descriptor	6.40398 BRISK	17 18	2079 1539	1.00696 1.00351	14.3683 28.4678
Frame #	No Of Ratios	Avg Ratio	TTC			Descriptor	BRISK
2		1.00581	17.2164	Frame #	No Of Rati	•	TTC
3		1.00634	15.7747	1		1.00797	12.5511
4	7021	1.00659	15.1844	2	5778	1.00716	13.9619
5	6328	1.00573	17.4478	3	7021	1.00747	13.3958
6		1.00656	15.2418	4	6328	1.00679	14.7346
7		1.00538	18.5866	5	5460	1.00715	13.9866
8		1.0063	15.8637	6	5356	1.00629	15.8859
9		1.00729 1.00686	13.7207 14.5721	7 8	7381 7503	1.00631	15.8603 14.1306
10 11		1.00769	13.005	9	7303	1.00708 1.00697	14.1306
12		1.00703	13.5365	10	8001	1.00817	12.2401
13		1.0075	13.3282	11	6555	1.0082	12.1985
14		1.00895	11.1728	12	8385	1.00879	11.376
15	6670	1.00775	12.9047	13	7260	1.00962	10.3932
16		1.0084	11.9038	14	6670	1.0095	10.5217
17		1.00919	10.88	15	7021	1.01011	9.89529
18		1.01005	9.94932	16	7140	1.00985	10.1517
19		1.01115	8.96721 BRIEF	17 18	7021 6555	1.01086 1.01125	9.20525 8.88728
Detector Frame #	No Of Ratios	Descriptor Avg Ratio	TTC			Descriptor	BRIEF
2		, we made	16.861			Avg Ratio	TTC
	5886	1.00593	10.001	Frame #	NO OT RALI	0	
3		1.00593 1.00357	28.0265	Frame # 1	5886	1.00735	13.6127
	7021					1.00735 1.00663	
3	7021 8128	1.00357	28.0265	1	5886		13.6127
3 4 5 6	7021 8128 7260 7260	1.00357 1.00746 1.00513 1.00453	28.0265 13.4113 19.4968 22.0542	1 2 3 4	5886 7021 8128 7260	1.00663 1.0075 1.0066	13.6127 15.0817 13.339 15.1626
3 4 5 6 7	7021 8128 7260 7260 7260	1.00357 1.00746 1.00513 1.00453 1.00724	28.0265 13.4113 19.4968 22.0542 13.8057	1 2 3 4 5	5886 7021 8128 7260 7260	1.00663 1.0075 1.0066 1.00655	13.6127 15.0817 13.339 15.1626 15.2563
3 4 5 6 7 8	7021 8128 7260 7260 7260 9045	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015	1 2 3 4 5 6	5886 7021 8128 7260 7260 7260	1.00663 1.0075 1.0066 1.00655 1.0068	13.6127 15.0817 13.339 15.1626 15.2563 14.6958
3 4 5 6 7 8 9	7021 8128 7260 7260 7260 9045 9316	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333	1 2 3 4 5 6 7	5886 7021 8128 7260 7260 7260 9045	1.00663 1.0075 1.0066 1.00655 1.0068	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215
3 4 5 6 7 8 9 10	7021 8128 7260 7260 7260 9045 9316 8256	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619	1 2 3 4 5 6 7 8	5886 7021 8128 7260 7260 7260 9045 9316	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216
3 4 5 6 7 8 9	7021 8128 7260 7260 7260 9045 9316 8256 9453	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595	1 2 3 4 5 6 7	5886 7021 8128 7260 7260 7260 9045	1.00663 1.0075 1.0066 1.00655 1.0068	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215
3 4 5 6 7 8 9 10 11	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595	1 2 3 4 5 6 7 8 9	5886 7021 8128 7260 7260 7260 9045 9316 8256	1.00663 1.0075 1.0066 1.00655 1.0068 1.00689	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058
3 4 5 6 7 8 9 10 11 12	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958	1 2 3 4 5 6 7 8 9	5886 7021 8128 7260 7260 9045 9316 8256 9453	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632 1.00689 1.00689	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455
3 4 5 6 7 8 9 10 11 12 13 14	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00446 1.00774	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008	1 2 3 4 5 6 7 8 9 10 11 12 13	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632 1.00689 1.00804 1.00766 1.00806 1.00971	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994
3 4 5 6 7 8 9 10 11 12 13 14 15	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00446 1.00774 1.00714	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455	1 2 3 4 5 6 7 8 9 10 11 12 13 14	5886 7021 8128 7260 7260 9045 9316 8256 9453 9591 9453 8515	1.00663 1.0075 1.0066 1.00655 1.00682 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163
3 4 5 6 7 8 9 10 11 12 13 14 15 16	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316	1.00357 1.00746 1.00743 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00774 1.00714 1.00914 1.00914	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285	1 2 3 4 5 6 7 8 9 10 11 12 13 14	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00714 1.00718 1.00718	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.00981	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00446 1.00774 1.00714 1.00914 1.00718 1.00843 1.00861	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778	1.00663 1.0075 1.0066 1.00655 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.00981	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984 9.12824
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00718 1.00718 1.00843 1.00961 Descriptor	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.01039 1.01096 1.01096	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE No Of Ratios	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00446 1.00774 1.00714 1.00914 1.00718 1.00843 1.00861	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778	1.00663 1.0075 1.0066 1.00655 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.010981 1.01096 1.01107	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame #	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE No Of Ratios	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00744 1.00714 1.00714 1.00718 1.00843 1.00861 Descriptor	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE	1.00663 1.0075 1.0066 1.00655 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.010981 1.01096 1.01107	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4408 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame #	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8515 8646 9316 8778 8256 AKAZE No Of Ratios	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00714 1.00718 1.00843 1.00961 Descriptor Avg Ratio 1.00487	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC 20.5418	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8546 9316 8778 8256 AKAZE	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.010981 1.01096 1.01107 Descriptor	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4408 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE No Of Ratios	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00718 1.00718 1.00843 1.00961 Descriptor Avg Ratio 1.00487 1.00556 1.00608 1.00513	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC 20.5418 17.9896 16.4404 19.5072	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame #	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8646 9316 8778 8256 AKAZE No Of Ration 5671 6216 7626	1.00663 1.0075 1.0066 1.00655 1.0068 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.01039 1.01096 1.01107 Descriptor Avg Ratio	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4408 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB TTC 12.9715 14.2868 13.3337
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE No Of Ratios 5671 6216 7626 6328 5778	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00714 1.00718 1.00843 1.00961 Descriptor Avg Ratio 1.00487 1.00556 1.00608 1.00513 1.00445	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC 20.5418 17.9896 16.4404 19.5072 22.4472	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame #	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE No Of Rati 5671 6216 7626 6328	1.00663 1.0075 1.0066 1.00655 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.01098 1.01096 1.01107 Descriptor Avg Ratio 1.00771 1.007 1.0075 1.00682	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB TTC 12.9715 14.2868 13.3337 14.6533
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8546 9316 8778 8256 AKAZE No Of Ratios 5671 6216 7626 6328 5778 5995	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00714 1.00718 1.00843 1.00961 Descriptor Avg Ratio 1.00487 1.00556 1.00608 1.00513 1.00445 1.00488	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC 20.5418 17.9896 16.4404 19.5072 22.4472 20.5116	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame #	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE No Of Ration 5671 6216 7626 6328 5778	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.01096 1.01107 Descriptor Avg Ratio 1.00771 1.007 1.0075 1.00682 1.00648	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB TTC 12.9715 14.2868 13.3337 14.6533 15.4264
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8515 8546 9316 8778 8256 AKAZE No Of Ratios 5671 6216 7626 6328 5778 5995 8128	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00714 1.00718 1.00843 1.00961 Descriptor Avg Ratio 1.00487 1.00556 1.00608 1.00513 1.00445 1.00488 1.00558	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC 20.5418 17.9896 16.4404 19.5072 22.4472 20.5116 17.9052	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame #	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8646 9316 8778 8256 AKAZE No Of Rati 5671 6216 7626 6328 5778 5995	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.01039 1.01096 1.01107 Descriptor Avg Ratio 1.00771 1.0075 1.00682 1.00648 1.0065	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB TTC 12.9715 14.2868 13.3337 14.6533 15.4264 15.3728
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8515 8646 9316 8778 8256 AKAZE No Of Ratios 5671 6216 7626 6328 5778 5995 8128 7750	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00714 1.00718 1.00843 1.00961 Descriptor Avg Ratio 1.00487 1.00556 1.00608 1.00513 1.00445 1.00488 1.00558 1.00677	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC 20.5418 17.9896 16.4404 19.5072 22.4472 20.5116 17.9052 14.7722	1 2 3 4 5 6 7 8 Page 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE No Of Ration 5671 6216 7626 6328 5778 5995 8128	1.00663 1.0075 1.0066 1.00655 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.01096 1.01107 Descriptor Avg Ratio 1.00771 1.0075 1.00682 1.00648 1.0065 1.00626	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB TTC 12.9715 14.2868 13.3337 14.6533 15.4264 15.3728 15.9674
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9 10	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8646 9316 8778 8256 AKAZE No Of Ratios 5671 6216 7626 6328 5778 5995 8128 7750 7503	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00714 1.00914 1.00718 1.00843 1.00961 Descriptor Avg Ratio 1.00487 1.00556 1.00608 1.00556 1.00488 1.00558 1.00487 1.00546	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC 20.5418 17.9896 16.4404 19.5072 22.4472 20.5116 17.9052 14.7722 18.3062	1 2 3 4 5 6 7 8 Detector Frame # 1 2 3 4 5 6 7 8	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE No Of Ration 5671 6216 7626 6328 5778 5995 8128 7750	1.00663 1.0075 1.0066 1.00655 1.0068 1.00632 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.01039 1.01096 1.01107 Descriptor Avg Ratio 1.00771 1.007 1.0075 1.00682 1.00648 1.0065 1.00626 1.00714	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4408 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB TTC 12.9715 14.2868 13.3337 14.6533 15.4264 15.3728 15.9674 14.0111
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8515 8646 9316 8778 8256 AKAZE No Of Ratios 5671 6216 7626 6328 5778 5995 8128 7750 7503 9045	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00714 1.00718 1.00843 1.00961 Descriptor Avg Ratio 1.00487 1.00556 1.00608 1.00513 1.00445 1.00488 1.00558 1.00677	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC 20.5418 17.9896 16.4404 19.5072 22.4472 20.5116 17.9052 14.7722	1 2 3 4 5 6 7 8 Page 10 11 12 13 14 15 16 17 18 Detector Frame # 1 2 3 4 5 6 7	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8646 9316 8778 8256 AKAZE No Of Ration 5671 6216 7626 6328 5778 5995 8128	1.00663 1.0075 1.0066 1.00655 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.01096 1.01107 Descriptor Avg Ratio 1.00771 1.0075 1.00682 1.00648 1.0065 1.00626	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB TTC 12.9715 14.2868 13.3337 14.6533 15.4264 15.3728 15.9674
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Detector Frame # 2 3 4 5 6 7 8 9 10 11	7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8515 8515 8646 9316 8778 8256 AKAZE No Of Ratios 5671 6216 7626 6328 5778 5995 8128 7750 7503 9045 6903	1.00357 1.00746 1.00513 1.00453 1.00724 1.00502 1.00473 1.00626 1.00685 1.00641 1.00714 1.00714 1.00714 1.00718 1.00843 1.00961 Descriptor Avg Ratio 1.00487 1.00556 1.00608 1.00513 1.00445 1.00488 1.00558 1.00677 1.00546 1.00937	28.0265 13.4113 19.4968 22.0542 13.8057 19.9015 21.1333 15.9619 14.595 15.5958 22.4375 12.9166 14.008 10.9455 13.9285 11.8691 10.4097 ORB TTC 20.5418 17.9896 16.4404 19.5072 22.4472 20.5116 17.9052 14.7722 18.3062 10.6778	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Detector Frame #	5886 7021 8128 7260 7260 7260 9045 9316 8256 9453 9591 9453 8515 8646 9316 8778 8256 AKAZE No Of Rati 5671 6216 7626 6328 5778 5995 8128 7750 7503	1.00663 1.0075 1.0066 1.00655 1.0068 1.00689 1.00689 1.00804 1.00766 1.00806 1.00971 1.0096 1.01039 1.01039 1.01098 1.01107 Descriptor Avg Ratio 1.00771 1.0075 1.00682 1.00648 1.0065 1.00626 1.00679	13.6127 15.0817 13.339 15.1626 15.2563 14.6958 15.8215 14.5216 14.5058 12.4455 13.0628 12.4008 10.2994 10.4163 9.62921 10.1984 9.12824 9.03273 ORB TTC 12.9715 14.2868 13.3337 14.6533 15.4264 15.3728 15.9674 14.0111 14.7223

14	7626	1.00742		13.4759	12	8001		1.00836	11.9618
15				12.5879	13	7626		1.00934	10.712
16	7381	1.00762		13.1174	14	7750		1.0094	10.6433
17		1.01002		9.97726	15	7381		1.00986	10.1371
18	7503	1.00889		11.2483	16	8001		1.00966	10.3507
19				8.52149	17	7503		1.01105	9.05157
Detector	AKAZE	Descriptor	AKAZE		18	7021		1.01119	8.93563
Frame #	No Of Ratios	Avg Ratio	TTC		Detector	AKAZE	Descriptor	,	AKAZE
2	5565			22.8082	Frame #	No Of Rati	-		TTC
3	5995	1.00459		21.7763	1	5565		1.00788	12.698
4	7381	1.00944		10.5939	2	5995		1.00683	14.6497
5	6441	1.00394		25.3975	3	7381		1.00767	13.0437
6	5778	1.00035			4	6441		1.00649	15.4148
7	5995	1.00911		10.9813	5	5778		1.00628	15.9257
8	8385	1.01039		9.62291	6	5995		1.00696	14.3764
9	8256	1.00613		16.3116	7	8385		1.00649	15.4148
10	7626	1.00553		18.0846	8	8256		1.00701	14.2731
11				14.2655	9	7626		1.00685	14.6063
12				14.0104	10	8778		1.00818	12.2191
13		1.00875		11.4234	11	7140		1.00811	12.327
14				10.5056	12	8001		1.00859	11.6456
15		1.0094		10.6334	13	7626		1.00933	10.7227
16		1.0089		11.2321	14			1.00949	10.5414
17				10.1287	15	7021		1.00959	10.4232
18				10.698	16	8256		1.00984	10.1664
19	7503			7.98225	17 18	7260		1.01103	9.06587
Detector Frame #	SIFT No Of Ratios	Descriptor Avg Ratio	BRISK TTC		Detector	7503 SIFT	Descriptor	1.01108	9.02543 BRISK
2		•	110	13.6488	Frame #	No Of Rati			TTC
3				14.0872	1		Avg natio	1.00806	12.3996
4				13.6994	2	3642		1.00804	12.4339
5				54.1178	3	5756		1.0077	12.9928
6	4355	1.00689		14.5067	4	4831		1.00568	17.5971
7		1.0077		12.9907	5	4355		1.00709	14.096
8	6423	1.00791		12.6448	6	4839		1.00841	11.8843
9	6428	1.00932		10.7268	7	6423		1.00733	13.639
10	6419	1.00774		12.9169	8	6428		1.00766	13.0597
11	4352	1.01486		6.728	9	6419		1.00753	13.2768
12		1.00939		10.6493	10	4352		1.00981	10.1928
13		1.00971		10.2999	11	4170		1.00922	10.8403
14				8.80983	12	4931		1.00965	10.3637
15				8.77212	13	5130		1.0116	8.62306
16				8.57535	14	5024		1.01132	8.8371
17				8.38829	15	4737		1.0115	8.69539
18				8.63975	16	5230		1.01185	8.43563
19 Detector	4254 SIFT		BRIEF	8.88622	17 18	3388 4254		1.01219 1.01235	8.20672 8.09606
Detector Frame #	No Of Ratios	Descriptor Avg Ratio	TTC		Detector		Descriptor		8.09606 BRIEF
2		-		16.097	Frame #	No Of Rati	•		TTC
3		1.00615		16.2707	1	5651	Avg natio	1.00826	12.1044
4				22.9103	2			1.00808	12.3691
5				22.9999	3	8106		1.00712	14.0417
6				8.7206	4	7234		1.00587	17.0283
7	7005	1.00582		17.168	5	6536		1.00681	14.6809
8	9569	1.00894		11.1824	6	7005		1.00799	12.5105
9	9438	1.0057		17.5538	7	9569		1.00733	13.6353
10	9291	1.00365		27.391	8	9438		1.00668	14.9632
11				17.7323	9	9291		1.00722	13.8572
12				12.826	10	7113		1.00917	10.9061
13		1.01069		9.35046	11	5978		1.00921	10.8557
14		1.00988		10.119	12	8105		1.01025	9.75361
15	6188			7.69528	13	6998		1.01137	8.79126
16				8.7602	14	6188		1.0113	8.85059
17		1.01226		8.15355	15	6764		1.01183	8.4523
18		1.01311		7.62599	16	6879		1.01219	8.20657
19	6079	1.01093		9.15281	17	4640		1.01242	8.052
					18	6079		1.01218	8.20885

-SHITOMASI/BRISK

SHITOMASI/BRIEF

→ SHITOMASI/ORB

FAST/BRISK

----FAST/BRIEF

─▲ FAST/ORB

BRISK/BRISK

BRISK/BRIEF

BRISK/ORB

ORB/BRISK
ORB/BRIEF

ORB/ORB

─■ AKAZE/BRISK

→ AKAZE/AKAZE

─SIFT/BRISK

──SIFT/BRIEF

20

SHITOMASI/BRISK

→ SHITOMASI/ORB

FAST/BRISK
FAST/ORB

BRISK/BRISK

BRISK/ORB
ORB/BRISK

ORB/ORB

AKAZE/BRISK

→ AKAZE/AKAZE

SIFT/BRIEF

- SHITOMASI/BRISK
- ---- SHITOMASI/BRIEF
- → SHITOMASI/ORB
- FAST/BRISK
- FAST/BRIEF
- FAST/ORB
- BRISK/BRISK
- BRISK/BRIEF
- BRISK/ORB
- ORB/BRISK
- ORB/BRIEF
- → ORB/ORB
- AKAZE/BRISK
- AKAZE/BRIEF
- —▲— AKAZE/ORB
- → AKAZE/AKAZE
- SIFT/BRISK
- **─**SIFT/BRIEF

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AKAZE/BRISK

AKAZE/BRIEF

→ AKAZE/ORB

→ AKAZE/AKAZE