

MP.9 Performance Evaluation 3											
Log the time it takes for keypoint detection and descriptor extraction.											
The results must be entered into a spreadsheet and based on this data, the TOP3 detector / descriptor combinations must be recommended as the best choice for our purpose of detecting keypoints on vehicles.											
Image	1	2	3	4	5	6	7	8	9	10	
Detector + Descriptor	COMPUTATION TIME (MILLISECONDS)										Average time
Shi-Tomasi + BRISK	11.477402	10.60974	10.2025	10.05206	10.41189	10.18094	10.09207	9.97733	10.19332	10.17427	10.3371522
Shi-Tomasi + BRIEF	11.155395	10.577766	10.239435	10.019582	9.658584	10.023078	9.720505	9.557908	10.795485	9.839191	10.1586929
Shi-Tomasi + ORB	13.49599	12.26446	12.0111	12.10495	11.73145	11.91845	11.82337	11.7412	11.90925	11.835	12.083522
Shi-Tomasi + FREAK	43.604	39.55124	36.93462	36.53685	36.95448	36.07447	35.82938	36.44143	35.77039	35.84081	37.353767
Shi-Tomasi + AKAZE	-	-	-	-	-	-	-	-	-	-	-
Shi-Tomasi + SIFT	21.7583	20.44659	20.51449	20.68935	20.2209	20.3072	20.23975	20.25422	20.06094	19.9424	20.443414
Harris + BRISK	11.44543	10.354952	10.408136	10.457963	11.060942	19.533516	10.459564	11.921163	11.226988	14.045393	12.0914047
Harris + BRIEF	10.424022	9.950912	9.937195	10.096636	10.180558	18.573742	9.716746	10.94843	10.353215	13.280016	11.3461472
Harris + ORB	13.09296	12.05638	11.9401	13.45141	12.2723	19.99925	11.66671	13.1123	13.11497	15.50916	13.621554
Harris + FREAK	44.7202	39.39456	37.54425	39.37618	39.37873	46.5278	38.16865	39.50181	38.32812	41.7262	40.46665
Harris + AKAZE	-	-	-	-	-	-	-	-	-	-	-
Harris + SIFT	20.22017	19.65368	19.61042	19.79732	19.86442	28.5898	18.99097	20.6671	20.85885	22.5702	21.082293
FAST + BRISK	3.13264	2.349332	2.075744	1.9308	1.890032	1.890713	1.946198	1.940838	1.818693	1.864781	2.0839771
FAST + BRIEF	2.11815	1.475345	1.093421	0.977278	0.966338	0.992106	1.003493	0.971979	0.951093	0.946019	1.1495222
FAST + ORB	3.637819	3.155122	3.179166	3.042559	3.100149	3.092907	3.083634	3.132977	3.138304	3.167459	3.1730096
FAST + FREAK	34.732359	33.499733	31.573531	31.265881	31.400001	31.880437	31.788691	32.490785	32.272803	32.532851	32.3437072
FAST + AKAZE	-	-	-	-	-	-	-	-	-	-	-
FAST + SIFT	13.20415	12.133608	11.367444	12.660478	11.330874	11.503603	11.421583	11.307072	11.488146	12.230888	11.8647846
BRISK + BRISK	31.31912	31.75413	32.10579	31.56904	31.31975	30.99314	30.7613	30.19426	30.7732	31.06217	31.18519
BRISK + BRIEF	29.226056	29.102218	30.71712	28.676535	29.007353	28.8001	28.515216	27.473178	28.393508	28.069207	28.7980491
BRISK + ORB	36.74938	39.93459	38.84577	37.51034	37.90304	37.27343	36.38289	36.66646	36.25553	35.74133	37.326276
BRISK + FREAK	62.2581	64.0172	62.4946	61.1782	61.4893	60.6223	60.6858	61.2778	60.243	60.3644	61.46307
BRISK + AKAZE	-	-	-	-	-	-	-	-	-	-	-
BRISK + SIFT	47.96	47.7005	45.4177	46.4267	49.3084	44.5144	50.4798	44.2693	44.76	44.0744	46.49112
AKAZE + BRISK	46.46053	43.12203	42.96343	40.25078	40.84909	45.26862	42.48713	40.85226	44.70746	41.42769	42.838902
AKAZE + BRIEF	43.87612	41.058678	45.533831	45.719679	46.254699	42.876229	43.196903	46.952055	43.80552	47.081462	44.6355176
AKAZE + ORB	48.8894	49.10267	51.21571	47.08012	47.41531	50.22239	51.15208	50.9876	48.16217	47.75662	49.198407
AKAZE + FREAK	78.3844	71.5265	66.7495	68.5678	71.3922	66.7064	66.0943	70.162	65.6183	64.4865	68.96879
AKAZE + AKAZE	81.3507	75.5525	77.3657	82.1974	71.6669	78.9706	72.4626	74.8647	77.5909	78.1202	77.01422
AKAZE + SIFT	55.8237	51.1506	51.2182	53.1305	54.7154	50.4786	59.6264	50.0888	51.2113	60.8253	53.82688
SIFT + BRISK	72.40679	66.94409	67.34125	70.94025	69.82552	69.95512	69.94737	68.59464	70.27914	67.17949	69.341366
SIFT + BRIEF	67.920418	62.375701	61.403123	62.890531	64.344542	62.805538	62.875676	63.650108	62.808271	64.849202	63.592311
SIFT + ORB	-	-	-	-	-	-	-	-	-	-	-
SIFT + FREAK	99.9332	94.3926	99.6036	98.1587	97.2567	97.3485	98.1599	97.9942	99.6846	97.0297	97.95617
SIFT + AKAZE	-	-	-	-	-	-	-	-	-	-	-
SIFT + SIFT	115.7911	86.7118	88.126	91.2007	89.3975	89.8347	93.4186	91.0587	94.7253	102.4257	94.26901