

XEst Report

Real-time vision-based navigation module

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The Works

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Chapter 1. QuEst+

1.1. configs:

TID: T00001

benchmark: KITTI

del_T: 10.1

	EightPt	Nister	Kukelova	QuEst	VEst
T err mean	0.1633	0.1074	0.1449	0.0736	0.3138
T err std	0.1259	0.1066	0.1359	0.0565	0.3854
T err med	0.1582	0.0631	0.0919	0.0678	0.0938
T err Q1	0.0593	0.0341	0.0585	0.0162	0.0382
T err Q3	0.2042	0.1632	0.1673	0.1263	0.6708
Q err mean	0.2418	0.0257	0.0289	0.0112	0.0146
Q err std	0.1691	0.0305	0.0319	0.0090	0.0172
Q err med	0.2703	0.0223	0.0257	0.0100	0.0053
Q err Q1	0.0464	0.0096	0.0096	0.0042	0.0028
Q err Q3	0.4016	0.0271	0.0343	0.0159	0.0183

Chapter 2. VEst+

2.1. configs:

TID: T00001

benchmark: KITTI

del_T: 10.1

	VEst
T err mean	0.6226
T err std	0.4101
T err med	0.9031
T err Q1	0.0963
T err Q3	0.9673
Q err mean	0.0146
Q err std	0.0172
Q err med	0.0053
Q err Q1	0.0028
Q err Q3	0.0183

Chapter 3. QEKF

3.1. configs:

TID: T00001

benchmark: KITTI

del_T: 10.1

	EightPt	Nister	Kukelova	QuEst	VEst
GT-X T err mean	0.4617	0.3227	0.3307	0.2301	0.3201
GT-X T err std	0.3304	0.2147	0.2180	0.2110	0.3630
GT-X T err med	0.4843	0.2769	0.3318	0.1356	0.1052
GT-X T err Q1	0.1128	0.1145	0.1485	0.0859	0.0399
GT-X T err Q3	0.7465	0.4751	0.4619	0.4825	0.4387
GT-X Q err mean	0.3332	0.3332	0.3332	0.3332	0.3332
GT-X Q err std	0.0004	0.0004	0.0004	0.0004	0.0004
GT-X Q err med	0.3331	0.3331	0.3331	0.3331	0.3331
GT-X Q err Q1	0.3329	0.3329	0.3329	0.3329	0.3329
GT-X Q err Q3	0.3334	0.3334	0.3334	0.3334	0.3334
GT-X V err mean	0.6060	0.4540	0.6115	0.5116	0.5209
GT-X V err std	0.3169	0.2678	0.3197	0.3692	0.4105
GT-X V err med	0.5715	0.4588	0.5590	0.4664	0.6786
GT-X V err Q1	0.4619	0.1895	0.4629	0.0956	0.0673
GT-X V err Q3	0.9262	0.5540	0.9549	0.9554	0.9165
Z-X T L1 mean	86384432671388534 11771648338047077 5675113029144916	330933471517485 757545300144208 679213601353035 10460	528812723476942 735073084868299 178157389011454 27908	86522232718548 65348678906881 59959229954785 28.0000	1.5187
Z-X T L1 std	31146350139855797 51235736713797662 7760406771707733	119319760032359 672220800451732 441735314129501 36719	190666138961387 676602402722956 461892483427509 48393	31196034653435 52303375633377 70165546518577 152.0000	1.0278
Z-X T L1 med	115729079770468.45 31	6.6085	1.7416	0.4053	1.4363

Chapter 3. QEF

Z-X T L1 Q 1	1.7697	1.2372	0.6106	0.2047	0.3934
Z-X T L1 Q 3	26548494852483944 52312883776264188 2249249564245389	309423210021599 098539432120156 160.0000	130733604344331 04581425627136.0 000	584.6589	2.1769
Z-X Q L1 m ean	1.4906	1.0974	1.1147	1.0446	1.0575
Z-X Q L1 st d	0.3053	0.0921	0.1087	0.0367	0.0640
Z-X Q L1 m ed	1.6512	1.0825	1.0919	1.0406	1.0243
Z-X Q L1 Q 1	1.1092	1.0495	1.0528	1.0155	1.0094
Z-X Q L1 Q 3	1.7420	1.1155	1.1285	1.0630	1.0789
Z-X V L1 m ean	23590534444404212 38624580043080753 7683266387096687	110103296330728 564914813022055 777056492684038 91030	354673997185213 194024043978938 525492201262882 46505	25092134666650 20053412732789 71255453227417 6.0000	0.1743
Z-X V L1 st d	85056881554898786 38264080146122544 2273112910788373	396983080518048 003527178020468 342237577316835 42751	127879528292505 670926930040404 831668286575511 89209	90470978151454 80845670368640 34044964660838 4.0000	0.1518
Z-X V L1 m ed	10096076991006.459 0	0.5952	0.1707	0.1559	0.1337
Z-X V L1 Q 1	0.0664	0.0805	0.1514	0.0596	0.0581
Z-X V L1 Q 3	30764262525109363 50190752490199304 3931860097759559	134492559466340 860907333150048 2560.0000	104671759731419 436682707657031 68.0000	58.5184	0.2449
Z-X T L2 m ean	42790842039992583 58937597721442111 2443005937529628	791286254178513 204783585915809 408989706224951 94347	158377909183119 252849034180910 858042240679276 66607	82375529373867 64172237518893 06580498149916 15538548	2.4696
Z-X T L2 st d	inf	inf	inf	29700919500096 98054837329974 19165597215224 58535898	2.8384
Z-X T L2 m ed	10147966536253224 532765048832.0000	21.5360	1.3433	0.0644	1.0450
Z-X T L2 Q 1	1.6566	0.7395	0.3358	0.0259	0.1035
Z-X T L2 Q 3	39239115991939542 58171793075265456 1263583884388962	325463740785178 008663169771479 978454319966216 64497	768305633782416 790892032596654 955381182892756 56379	136582.4199	3.9620
Z-X Q L2 m ean	1.0000	1.0000	1.0000	1.0000	1.0000
Z-X Q L2 st d	0.0000	0.0000	0.0000	0.0000	0.0000
Z-X Q L2 m ed	1.0000	1.0000	1.0000	1.0000	1.0000

Chapter 3. QEKF

Z-X Q L2 Q 1	1.0000	1.0000	1.0000	1.0000	1.0000
Z-X Q L2 Q 3	1.0000	1.0000	1.0000	1.0000	1.0000
Z-X V L2 m ean	49032422663607775 70853659130620063 3835736962817534	862848640679539 059915375486100 324569547730399 70799	142370459446676 545379339886453 573931254204511 42430	50606471645169 52187590970077 16848071052801 32325105	0.0342
Z-X V L2 st d	inf	inf	inf	18246422838697 31636446669544 12259172004725 77433743	0.0447
Z-X V L2 m ed	10145060334868086 7733045248.0000	0.1973	0.0234	0.0191	0.0151
Z-X V L2 Q 1	0.0032	0.0027	0.0079	0.0027	0.0016
Z-X V L2 Q 3	68983739114863964 83821045236886524 3932439490193124	794013831740477 403167360542815 744108828949342 29726	108161261984179 872543473044145 645846712503683 43899	1378.3334	0.0496