XEst main

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init

```
close all; clear; clc
addpath(genpath('./'));

% config - datasets handled by cfg object
cfg = config_class(test_ID   =   'XEst_unit_test');

dlog = dlogger_class();
dlog.load_cfg(cfg); % overwrite default settings

quest = quest_class();
quest.load_cfg(cfg);

vest = vest_class();
vest.load_cfg(cfg);

qekf = qekf_handler_class();
qekf.load_cfg(cfg);
```

run

```
cntr  = 0;
for frame_idx = cfg.dat.keyFrames % --->> iter keyframes
  cntr = cntr+1;

  TQVW_sols = quest.get_pose(frame_idx, cfg.dat); % get pose

  TQVW_sols = vest.get_vel(cfg.dat.matches, TQVW_sols); % get velocity

  st_sols  = qekf.run_filter(TQVW_sols); % run filter

  dlog.log_state(cntr, frame_idx, TQVW_sols, st_sols);

end % for frame_idx = cfg.dats.keyFrames
```

post-processing

```
quest_res   = quest.get_res(cfg, dlog);
vest_res    = vest.get_res(cfg, dlog);
qekf_res    = qekf.get_res(cfg, dlog);
```

KITTI

	EightPt	Nister	Kukelova	QuEst
Tran err mean	0.049233	0.13449	0.14946	0.061282
Tran err std	0.048413	0.11632	0.13914	0.065601
Tran err median	0.014529	0.049237	0.053502	0.011805
Tran err Q_1	0.01076	0.040477	0.032613	0.0073206
Tran err Q_3	0.094997	0.26048	0.30012	0.13456
Rot err mean	0.06361	0.0059552	0.013913	0.003214
Rot err std	0.091232	0.0069446	0.018129	0.0031175
Rot err median	0.0029372	0.0020042	0.0020599	0.0013304
Rot err Q_1	0.0022136	0.00088513	0.00083714	0.0007197
Rot err Q_3	0.11534	0.010447	0.025988	0.0059129

KITTI

	EightPt	Nister	Kukelova	QuEst
VEst - Rot err mean	0.065127	0.0099195	0.017791	0.0072258
VEst - Rot err std	0.088814	0.0061283	0.015296	0.0039695
VEst - Rot err median	0.012919	0.0073602	0.013252	0.0072257
VEst - Rot err Q_1	0.0049259	0.0054933	0.006031	0.0039765
VEst - Rot err Q_3	0.10936	0.014953	0.026547	0.0099746

KITTI

	EightPt	Nister	Kukelova	QuEst
St Tran err mean	0.054869	0.14402	0.19463	0.079147
St Tran err std	0.053866	0.12955	0.16017	0.086736
St Tran err median	0.019643	0.050219	0.17354	0.013745
St Tran err Q_1	0.010391	0.03792	0.022709	0.0072667
St Tran err Q_3	0.10525	0.27175	0.36588	0.17725

	EightPt	Nister	Kukelova	QuEst
St Rot err mean	0.3334	0.3334	0.3334	0.3334
St Rot err std	0.00068932	0.00068932	0.00068932	0.00068932
St Rot err median	0.33352	0.33352	0.33352	0.33352
St Rot err Q_1	0.33262	0.33262	0.33262	0.33262
St Rot err Q_3	0.33413	0.33413	0.33413	0.33413

	EightPt	Nister	Kukelova	QuEst
St Vel err mean	0.44776	0.57628	0.48942	0.36981
St Vel err std	0.35809	0.30705	0.24934	0.33472
St Vel err median	0.24923	0.61908	0.4203	0.17799
St Vel err Q_1	0.15072	0.25211	0.35202	0.13856
St Vel err Q_3	0.81366	0.86302	0.60922	0.6248

	EightPt	Nister	Kukelova	QuEst

St Tran res L1 mean	0.45893	1.0567	1.364	0.59043
St Tran res L1 std	0.3957	0.83397	0.54593	0.49952
St Tran res L1 median	0.31815	0.8213	1.3703	0.6223
St Tran res L1 Q_1	0.070987	0.25892	0.96956	0.03216
St Tran res L1 Q_3	0.86692	1.9422	1.7093	1.0782

	EightPt	Nister	Kukelova	QuEst
St Rot res L1 mean	1.1693	1.033	1.0719	1.0158
St Rot res L1 std	0.22947	0.035738	0.09182	0.013733
St Rot res L1 median	1.0152	1.0108	1.0108	1.007
St Rot res L1 Q_1	1.0107	1.0056	1.0054	1.0051
St Rot res L1 Q_3	1.3101	1.0591	1.1331	1.0268

	EightPt	Nister	Kukelova	QuEst
St Vel res L1 mean	0.077986	0.088696	0.10286	0.08039
St Vel res L1 std	0.041008	0.032621	0.042093	0.044354
St Vel res L1 median	0.075831	0.075831	0.075831	0.075831
St Vel res L1 Q_1	0.051755	0.062443	0.070863	0.051339
St Vel res L1 Q_3	0.11762	0.12062	0.13671	0.12495

	EightPt	Nister	Kukelova	QuEst
St Tran res L2 mean	0.33416	0.73107	1.326	0.39775
St Tran res L2 std	0.39721	0.78004	0.92508	0.43061
St Tran res L2 median	0.084079	0.36067	1.1579	0.15452
St Tran res L2 Q_1	0.0022626	0.027139	0.81801	0.00053013
St Tran res L2 Q_3	0.68673	1.4409	1.6321	0.87492

	EightPt	Nister	Kukelova	QuEst
St Rot res L2 mean	1	1	1	1
St Rot res L2 std	1.1102e-16	9.9301e-17	1.6467e-16	2.8522e-16
St Rot res L2 median	1	1	1	1
St Rot res L2 Q_1	1	1	1	1
St Rot res L2 Q_3	1	1	1	1

	EightPt	Nister	Kukelova	QuEst

```
    St Vel res L2 mean      0.0058479    0.0055558    0.0068626    0.0057821
    St Vel res L2 std       0.0054971    0.0046311    0.0057069    0.0054303
    St Vel res L2 median    0.0024857    0.0024857    0.0028065    0.0024857
    St Vel res L2 Q_1        0.001342    0.0016388    0.0023076    0.0013417
    St Vel res L2 Q_3         0.01197     0.010942      0.01251     0.011732
```

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