# Tasks:

* Implement GC-RANSAC. (done)
* PROSAC sampler. (done)
* Make test which outputs the average, median and standard deviation of the accuracy, failure ratio and processing time on each dataset. (done)
  + For example: results on ‘homogr’: 0.1;0.2;...
* Try to combine PROSAC with NAPSAC. For instance,
  + Select the first point by PROSAC. Then the rest by NAPSAC.
  + Select the first point by PROSAC. Then from the neighborhood select still by PROSAC.
* Put SPRT test (read USAC paper carefully and get the SPRT code from USAC). (done)
* Get competitor algorithms, e.g. USAC. Find others.

USAC: <https://github.com/cr333/usac-cmake>

MODS: <https://github.com/ducha-aiki/mods>

* NAPSAC with increasing radius. (Think about it at first.)
* Weighted Least Squares for solvers

New optimization:

1. While Not Termination Criteria
2. Get model
3. If current model differs in at most epsilon for every element with one of the previous model, then go to 2.

Otherwise save model.

E.g. Hi is homography matrix in i-th step

If for any Hj, j < i: abs(Hi - Hj) <= eps = (1 1 1; 1 1 1; 1 1 1), where 1 means true and i.e. eps = 1e-3, then continue;

4. Evaluate model.

Proof.

If we found model that is very similar to previous one, then model score is similar too. And we don’t need to evaluate this model again. On the other side the disadvantage is saving different model.

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I found that if estimate by non minimal model in the end more than 1 time, the number of inliers can be up to 2-3 times more.

# Datasets:

* Malaga dataset

https://www.mrpt.org/MalagaUrbanDataset

* Kitti

http://www.cvlibs.net/datasets/kitti/eval\_odometry.php

* Strecha

https://cvlab.epfl.ch/data/data-strechamvs/