

Keyframe-Based SLAM with Bundle Adjustment

Gang-of-Three

Goals

- constant time
- more accurate than visual odometry
- robust vs.
 - drift
 - getting lost

Approach

Localization - 1st Thread:

- FAST + FREAK
- reprojecting map
- Umeyama + RANSAC
- > Schedules map updates

Mapping - 2nd Thread:

- Subpixel recalculation of point-pose constraints
- Merge KeyFrame into map
- Bundle-Adjustment with ceres-solver

Extras

- use depth observations in cost function
- Occlusion checking during pose estimation
- incorporate Pose-Pose constraints
- car parameters as user interface