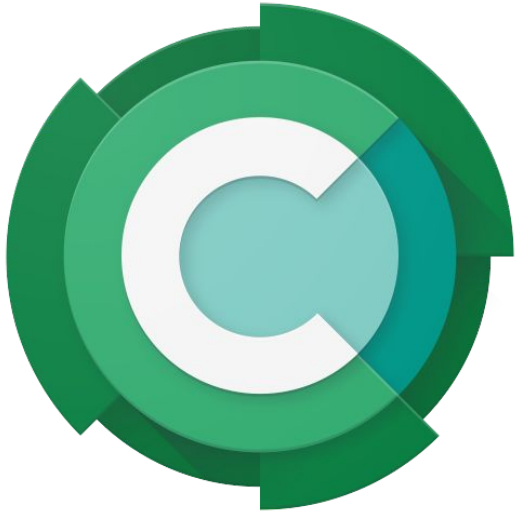
20th Cartographer Open House

2018-24-05
(yyyy-dd-mm)



What landed on master? • `cartographer`

- Clean-up
  - Organize all protos in mapping in a single folder. (#1147)
  - Allow easier access to CeresPose's data (#1149)
  - More const PoseGraph interface (#1156)
  - Add CSV export to the evaluation tool (#1159)
- Introduce a lockless queue for N producers and single consumer (#1152)
- Introduce a GlobalSlamResultCallback (#1143)
- Analytic Jacobian for pose graph optimization in 2D (#1161, #1163) - doc

What landed on master? • `cartographer_ros`

- Nothing

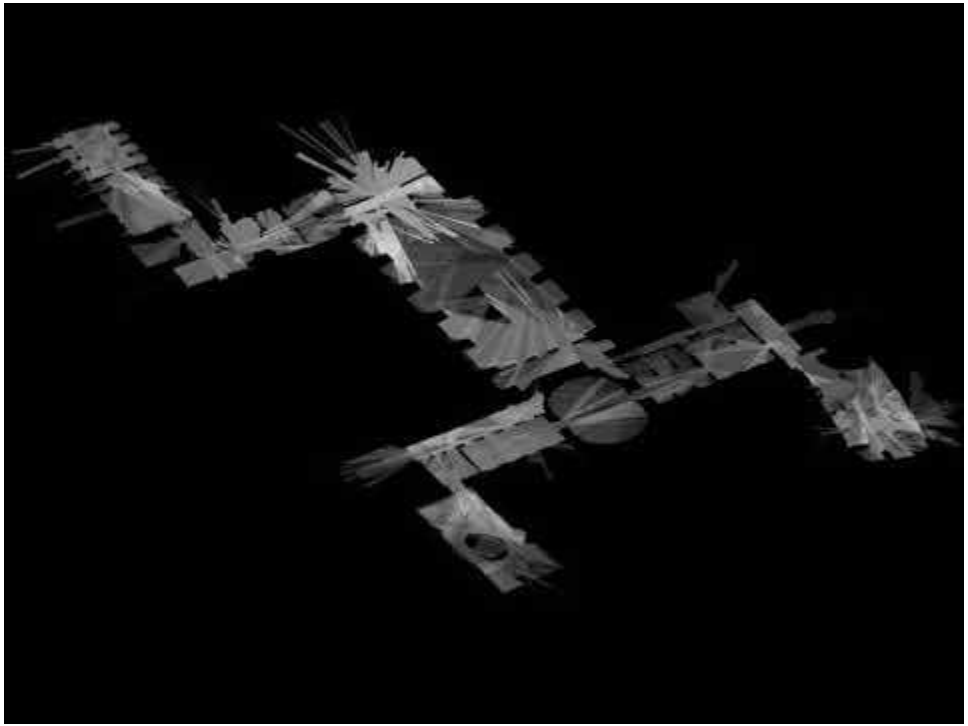
What landed on master? • `point_cloud_viewer`

- Adds a new strategy to color x-rays by intensity. (#134)

What landed on master / pending PRs? • `rfcs`

- Write GlobalSlamResultCallback RFC. (#31)
- Serialization File format for 1.0

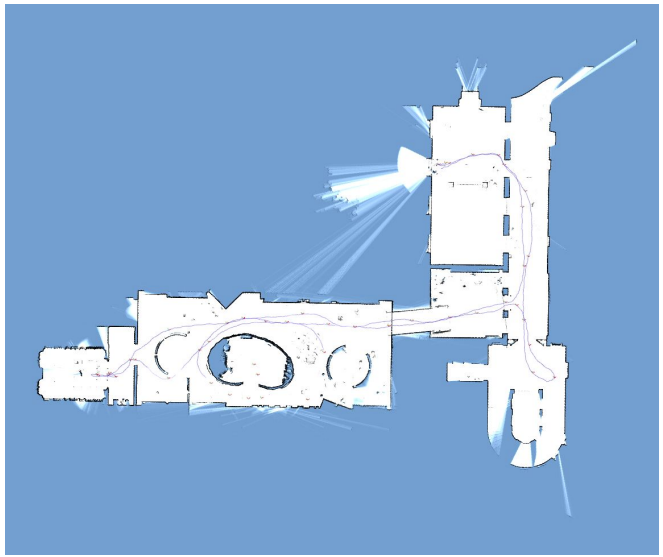
Overlapping trimmer



2 submaps per pixel, 1 sq. m. min covered area

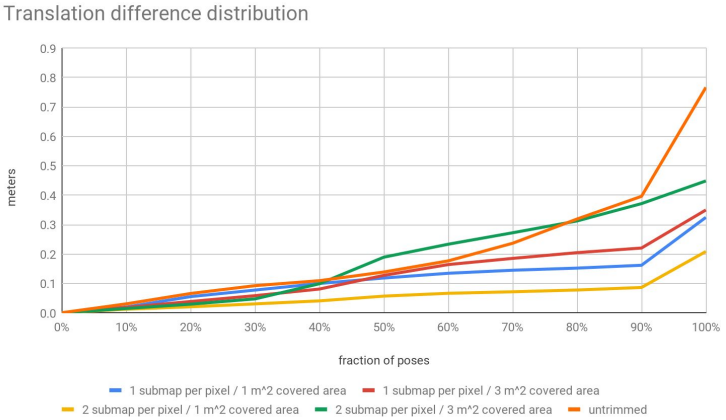
Overlapping trimmer: localization mode

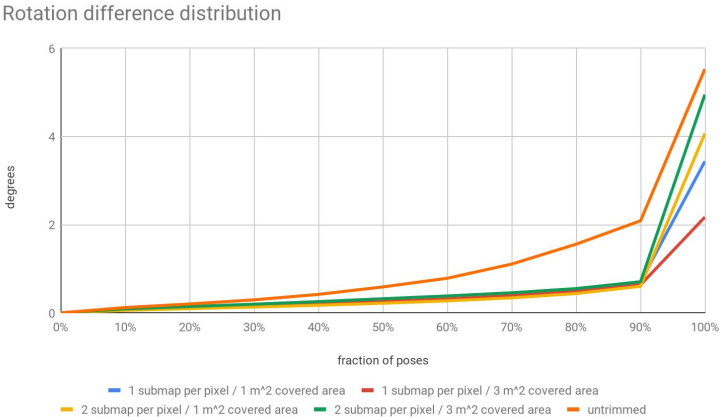
Localize b0-2014-07-21-12-42-53.bag (244 s, 64 MB) in b2-2014-12-12-14-18-43.bag (1164 s, 301 MB)
+
b1-2014-10-07-12-34-51.bag (766 s, 198 MB).



Overlapping trimmer: localization mode

The resulting TF ROS topic was compared with the interpolated poses from the “golden”.





The worst localization quality was achieved with the untrimmed map. The main reason is that the untrimmed map requires more computational resources to get a new global/local SLAM result. This means that the pose extrapolator has to guess poses based on older data.

Overlapping trimmer: localization mode

The resulting TF ROS topic was compared with the interpolated poses from the “golden”.

	1 submap per pixel / 1 m^2 covered area	1 submap per pixel / 3 m^2 covered area	2 submap per pixel / 1 m^2 covered area	2 submap per pixel / 3 m^2 covered area	untrimmed
Fraction of translation difference smaller than 1m:	100.00%	100.00%	100.00%	100.00%	100.00%
Fraction of translation difference smaller than 0.1m:	39.81%	44.88%	95.62%	40.05%	34.99%
Fraction of translation difference smaller than 0.05m:	18.46%	25.92%	46.42%	30.91%	15.94%
Fraction of translation difference smaller than 0.01m:	5.40%	4.61%	7.16%	5.81%	1.71%

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Current work

- Serialization format
- Reliable evaluation pipeline

Placeholder for other status reports

Thanks!

Next Open House:
June 7th, 5pm CET

If you would like to present anything next meeting, please reach out to cschuet@google.com