The method that we used to generate the results for Hilti SLAM Challenge [1] is HDL graph slam [2]

- It is a g2o based graph optimization SLAM.
- It is causal, It does not use information from the future to predict the pose at a given time.
- Loop closure is used in this technique.
- It uses Ouster lidar and its IMU as a graph constraint.
- As the trajectories were generated on a live playback of the bag files, it took the same time as the length of the bag file to generate the trajectories.
- The parameters were the same for all datasets apart from voxel grid downsampling, which was higher for the outdoor dataset.
- Campus 2, Construction site 1, 2 were just odometry results, and the rest were after pose graph optimization.
- ICP was used for scan matching and loop closure.

References:

[1] Michael Helmberger and Kristian Morin and Nitish Kumar and Danwei Wang and Yufeng Yue and Giovanni Cioffi and Davide Scaramuzza. (2021). The Hilti SLAM Challenge Dataset. arXiv:2109.11316

[2] Koide, Kenji & Miura, Jun & Menegatti, Emanuele. (2019). A portable three-dimensional LIDAR-based system for long-term and wide-area people behavior measurement. International Journal of Advanced Robotic Systems. 16. 10.1177/1729881419841532.