LOAM: Lidar Odometry and Mapping in Real-time

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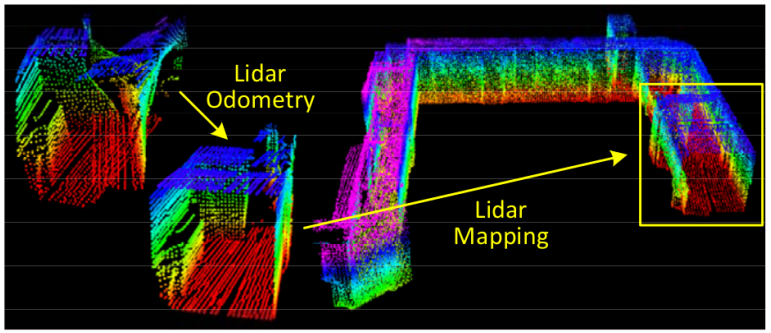

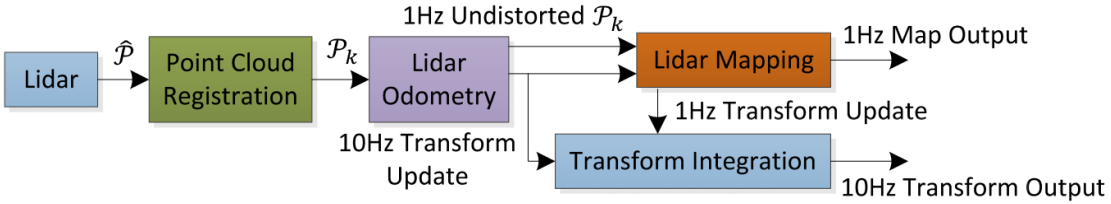

- A real-time odometry and mapping method from a 2-axis lidar moving in 6-DOF
- Problems:
  - Range measurements received at different times
  - Mis-registration of the point cloud due to the errors in motion estimation
- Current approaches: 3D maps by offline batch methods, using loop closure for drift
- Both low-drift and low-computational complexity without the need for high accuracy ranging or inertial measurements
- Division of the complex problem of simultaneous localization and mapping:
  - Odometry at a high frequency but low fidelity to estimate velocity of the lidar
  - Fine matching and registration of the point cloud at a frequency of an order of magnitude lower
- Tested both indoor and outdoor, state-of-the art accuracy in real-time on KITTI odometry benchmark