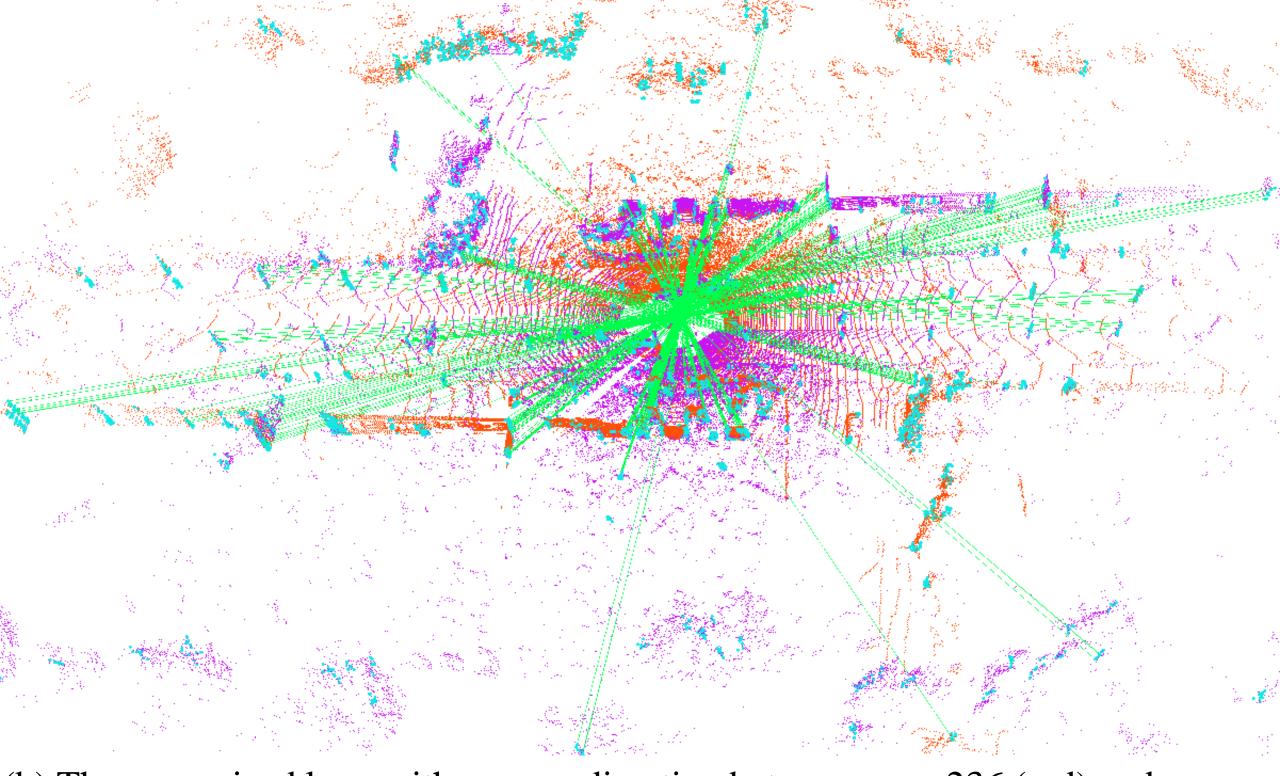


(a) The recognized loop with an angle 45° approximately between scan 113 (red) and scan 1564 (purple) on KITTI 00



(b) The recognized loop with reverse direction between scan 236 (red) and scan 1643 (purple) on KITTI 08