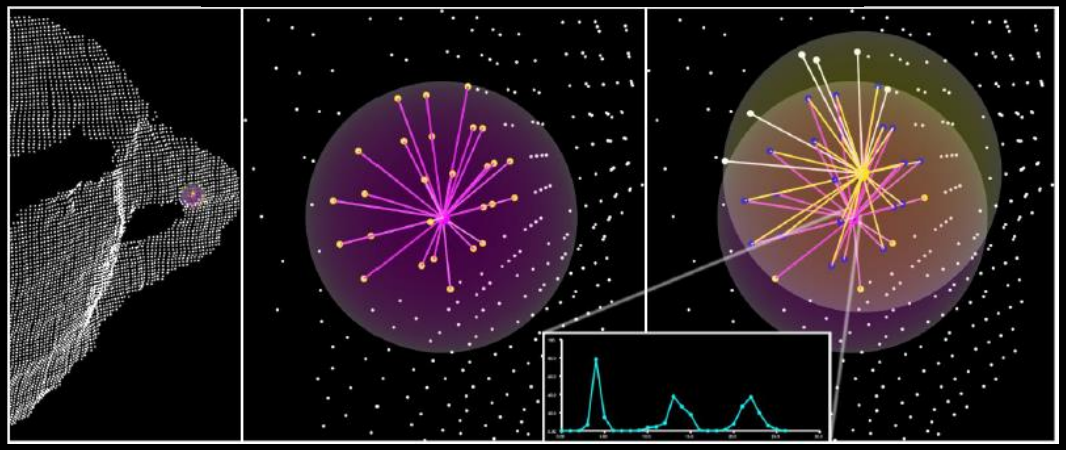
pointcloudlibrary



PCL Laboratory 3
Examples and exercises

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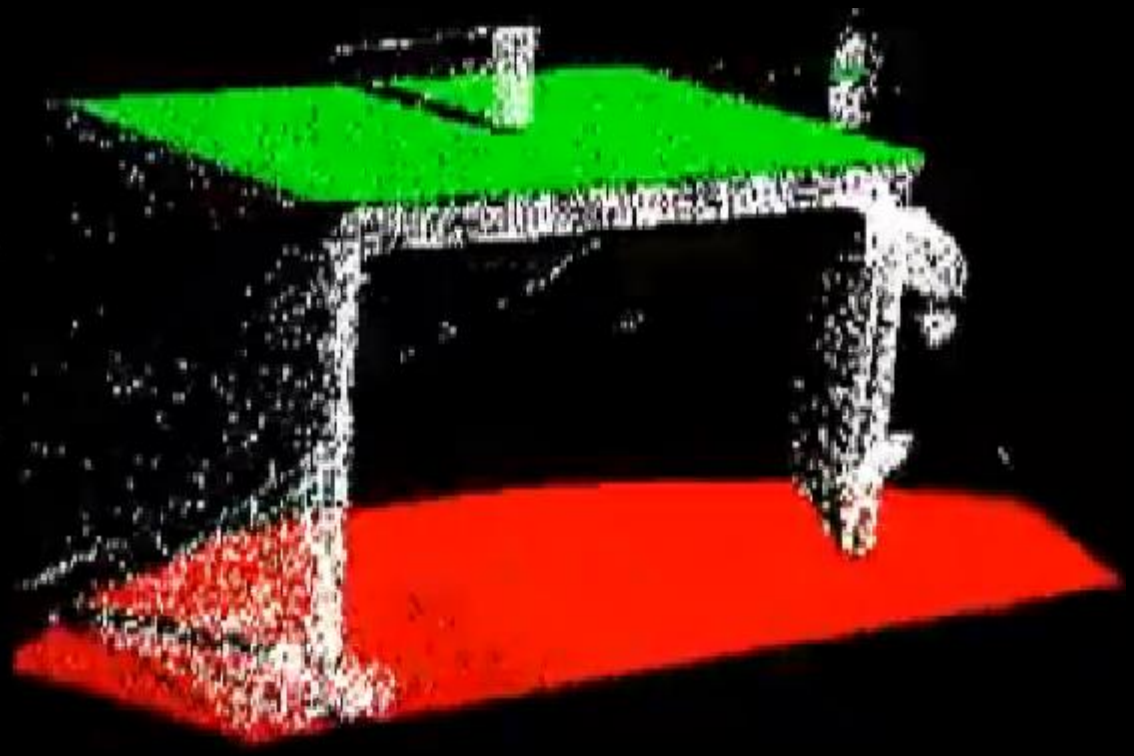
DIPARTIMENTO
DI INGEGNERIA
DELL'INFORMAZIONE

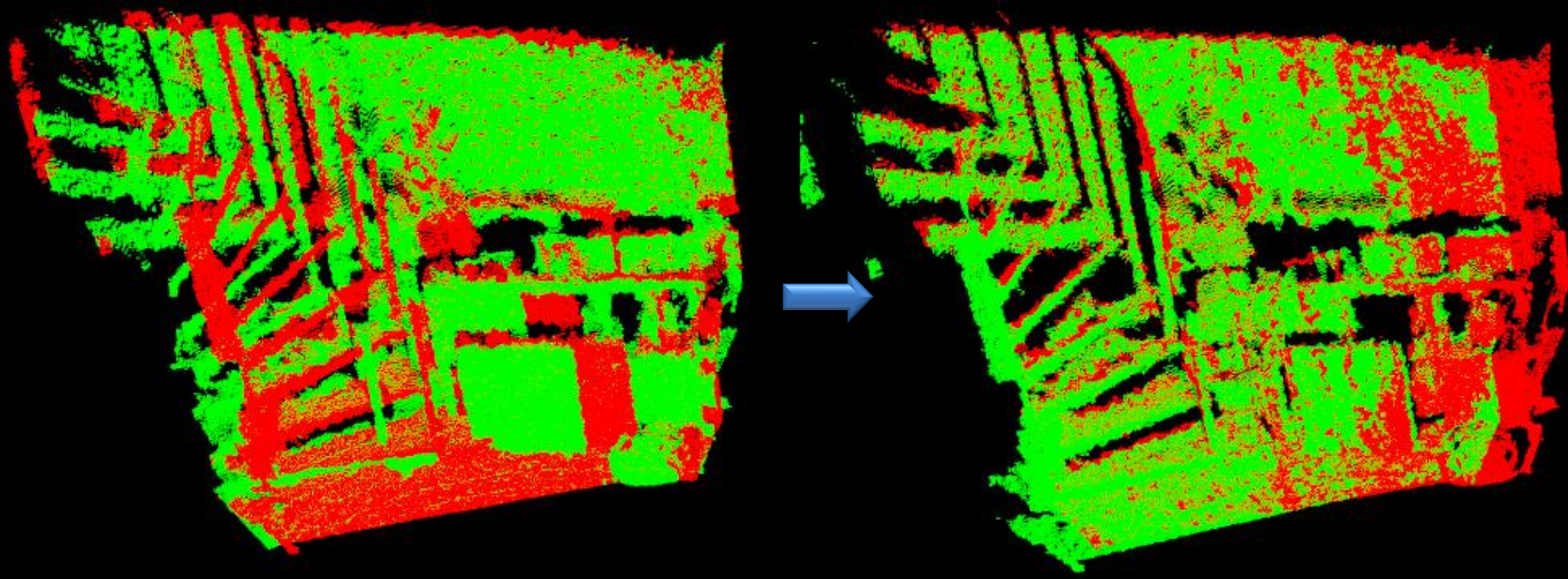
Example 1: plane_segmentation

- 3D planes are extracted from a pointcloud and visualized
- RANSAC-based plane estimation
- Repeated until only 30% of the original point cloud is reached
- `./plane_segmentation`



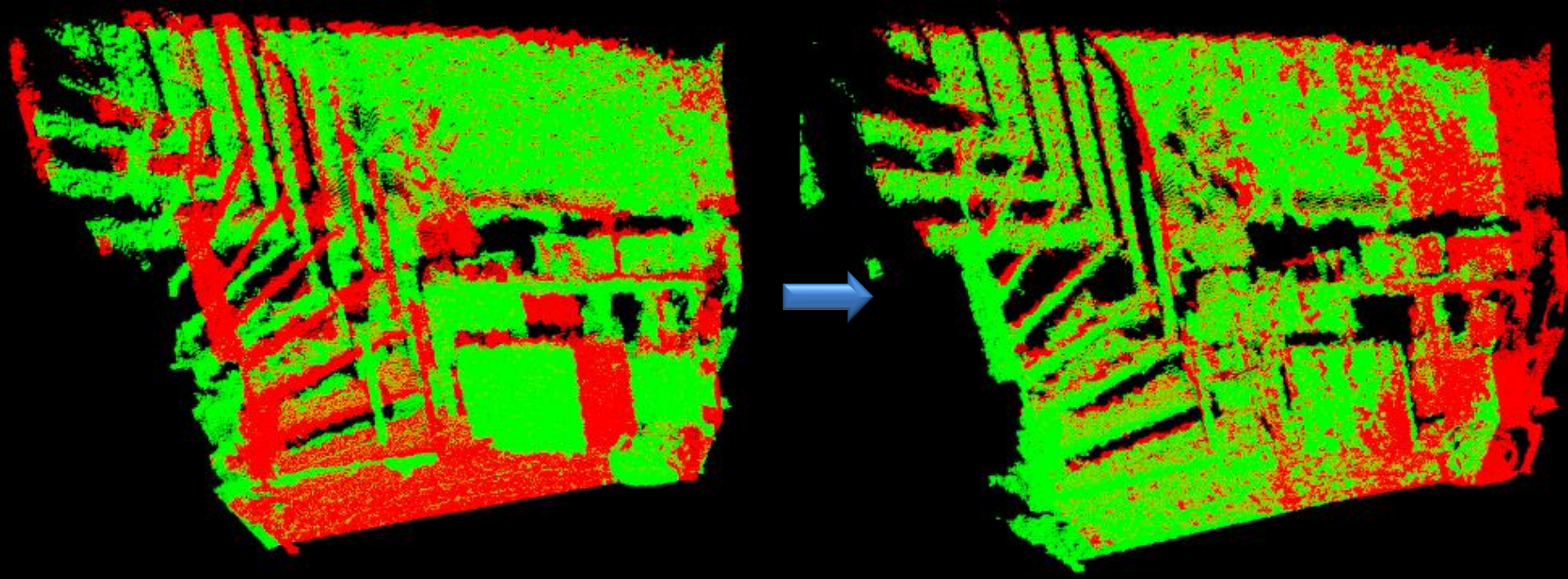
Example 2: pairwise_registration

- ICP registration of pairs of pointclouds
- Initialization is good (pre-alignement already done)
- Visualization of every ICP iteration
- Repeated for 5 pointclouds highly overlapping
- `./pairwise_incremental_registration ../dataset/capture000[1-5].pcd`



Example 2: pairwise_registration

- A new point type is created: [x y z curvature]
- This point type is used for the ICP alignment



Exercise

- Register together the four pointclouds provided.
- They can be visualized with `./dataset_visualizer`

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- Register together the four pointclouds provided.
- They can be visualized with `./dataset_visualizer`
- Try two methods and compare the results:
  - Method a):
    - Registration of 2 with respect to 1
    - Add 2 to 1
    - Registration of 3 with respect to 1+2
    - Add 3 to 1+2
    - Registration of 4 with respect to 1+2+3
    - Add 4 to 1+2+3
  - Method b):
    - Registration of 2 with respect to 1
    - Registration of 3 with respect to 1
    - Registration of 4 with respect to 1
    - Add 2, 3, 4 to 1
  - Which method gives the best results?