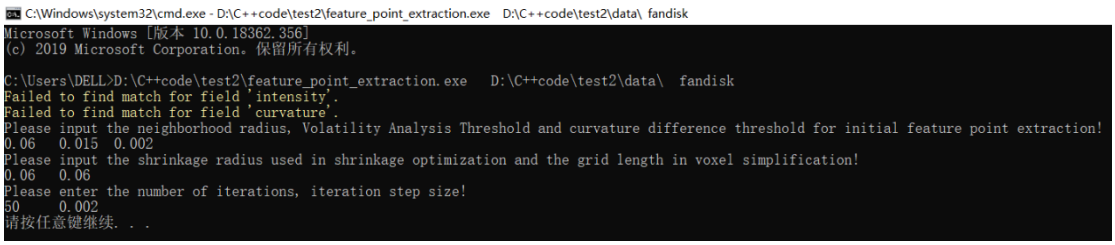

Run:

feature_line_extraction.exe data path filename

Input: Point cloud with its filtered normal (in a PLY format)

Output:

fandisk_final_feature_point_.ply

fandisk_final_feature_point_downsample_.ply is a down-sampled version.

Parameter explanation:

- **Neighborhood radius**：Determine a neighborhood for initial feature point detection,
- **Volatility Analysis Threshold**：The threshold used to measure surface variation.
- **Curvature difference threshold**：The threshold used to measure the curvature difference.
- **The radius used in shrinkage optimization**：Neighborhood radius used in iterative contraction.
- **The grid length:** Down sampling density for voxel simplification.
- **The number of iterations:** Number of iterations for iterative optimization.
- **Iteration step size:** The iteration step size of the gradient descent algorithm.

Note:

Only support the point cloud with “PLY” format

Some parameters are hardly-coded in our code, although they occur in our paper.

Please cite our work:

@article{chen2021multiscale,
title={Multiscale Feature Line Extraction From Raw Point Clouds Based on Local Surface Variation and Anisotropic Contraction},
author={Chen, Honghua and Huang, Yaoran and Xie, Qian and Liu, Yuanpeng and Zhang, Yuan and Wei, Mingqiang and Wang, Jun},
journal={IEEE Transactions on Automation Science and Engineering},
year={2021},
publisher={IEEE}
}