# 空间open3d：

import open3d as o3d

Coord-Sys: X (Right), Y (Up), Z (Out)

## 读写io：

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| read\_point\_cloud(file) / write\_point\_cloud(file, pcd) | 加载 / 写入点云 |
| read\_triangle\_mesh(file, True) | 加载网格及其纹理 |

## 几何geometry：

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| LineSet | | 图 |
| 实例属性 | points: utility.Vector3dVector | **结点** |
| lines: utility.Vector2iVector | **边** |
| colors: utility.Vector3dVector | **RGB** |

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| PointCloud | | 点云 |
| 实例属性 | points: utility.Vector3dVector | **点集** |
| colors: utility.Vector3dVector | **RGB** |
| 实例方法 | voxel\_down\_sample(size) | **返回**降采样点云 |
| transform(T) | **返回**变换点云 |
| estimate\_normals() | 估计法向量 |
| orient\_normals\_towards\_camera\_location(loc) | 调整法向量 |

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| KDTreeFlann(pcd) | | KD-Tree |
| 实例方法 | set\_geometry(pcd) | 重建 |
| search\_knn\_vector\_xd(vec, knn) | **返回**KNN |
| search\_radius\_vector\_xd(vec, radius) | **返回**半径搜索 |
| search\_hybrid\_vector\_xd(vec, radius, max\_nn) | **返回**混合搜索 |

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| VoxelGrid | | 体素网格 |
| **类方法** | create\_from\_point\_cloud(pcd, voxel\_size) | 从点云**构建** |
| **实例属性** | get\_center() | 中心 |
| get\_min\_bound / get\_max\_bound() | 边界 |

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| Octree(max\_depth) | | 体素网格 |
| **实例方法** | convert\_from\_point\_cloud(pcd, size\_expand) | 从点云**构建** |

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| TriangleMesh | | 三角网格 |
| **类方法** | create\_coordinate\_frame(size) | **创建**坐标轴 |
| create\_from\_point\_cloud\_ball\_pivoting(pcd, radii) | 滚球算法**构建** |
| create\_from\_point\_cloud\_poisson(pcd, depth) | 泊松算法**构建** |
| **实例方法** | sample\_points\_uniformly(npts) | 采样点云 |

## 可视化visualization：

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| draw\_geometries(geometries) | 绘制 |

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| Visualizer() | | 可视化器 |
| 实例方法 | create\_window / destroy\_window() | 创建 / 关闭窗口 |
| add\_gemotry(geometry, reset\_bounding\_box=True) | 添加**元素** |
| clear\_gemotries() | 清空**元素** |
| poll\_events() | 轮询事件 |
| update\_renderer() | 渲染 |