

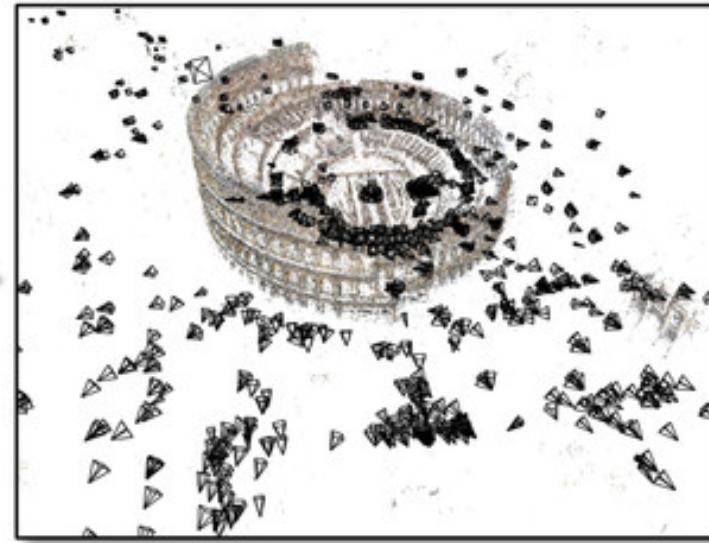
Structure From Motion

Introduction

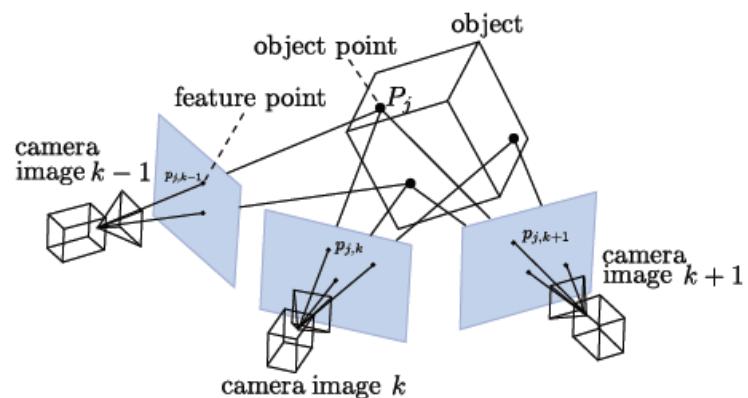
two-dimensional image sequences



three-dimensional structures



Introduction



Feature points matching

Sparse reconstruction

Dense reconstruction

Surface reconstruction

Bundler

Noah Snavely

C
C++



Sparse point clouds
Camera parameters

Introduction: <http://www.cs.cornell.edu/%7Esnavely/bundler>
Code: https://github.com/snnavely/bundler_sfm

Feature points matching

David Lowe

Scale-invariant feature transform

Invariant

Accuracy

Fast

David G. Lowe, "Object recognition from local scale-invariant features," *International Conference on Computer Vision*, Corfu, Greece (September 1999), pp. 1150-1157.

PMVS2

Yasutaka Furukawa& Jean Ponce

Sparse point clouds
Camera parameters



Dense point clouds

Introduction & code: <http://www.di.ens.fr/pmv>

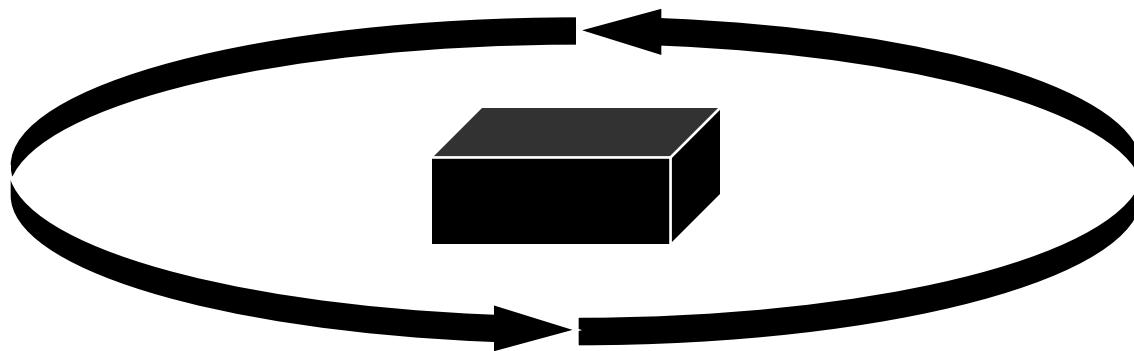
Meshlab

Open source software
3D reconstruction processing tool

<http://www.meshlab.net>

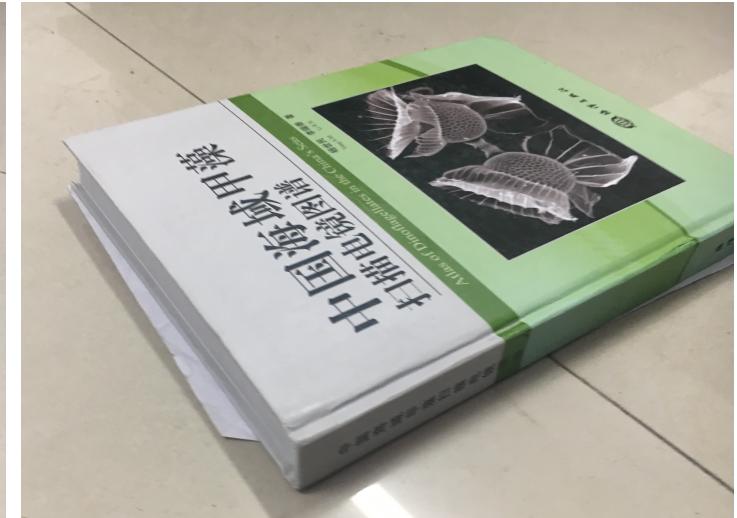
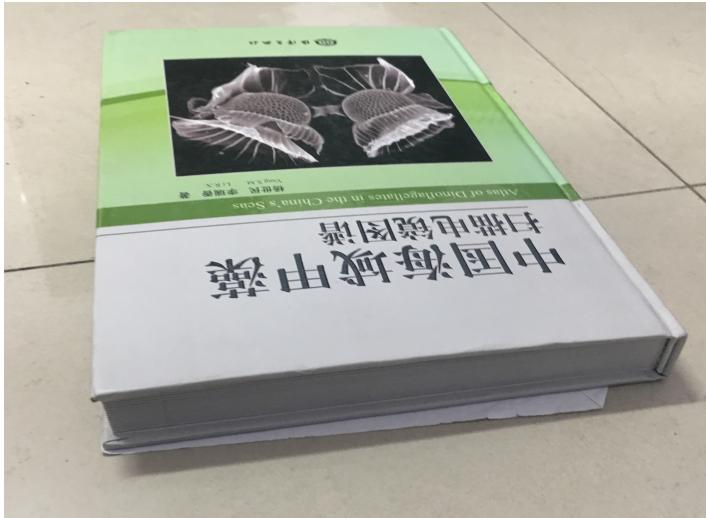
vision@ouc

Experiment---data collection



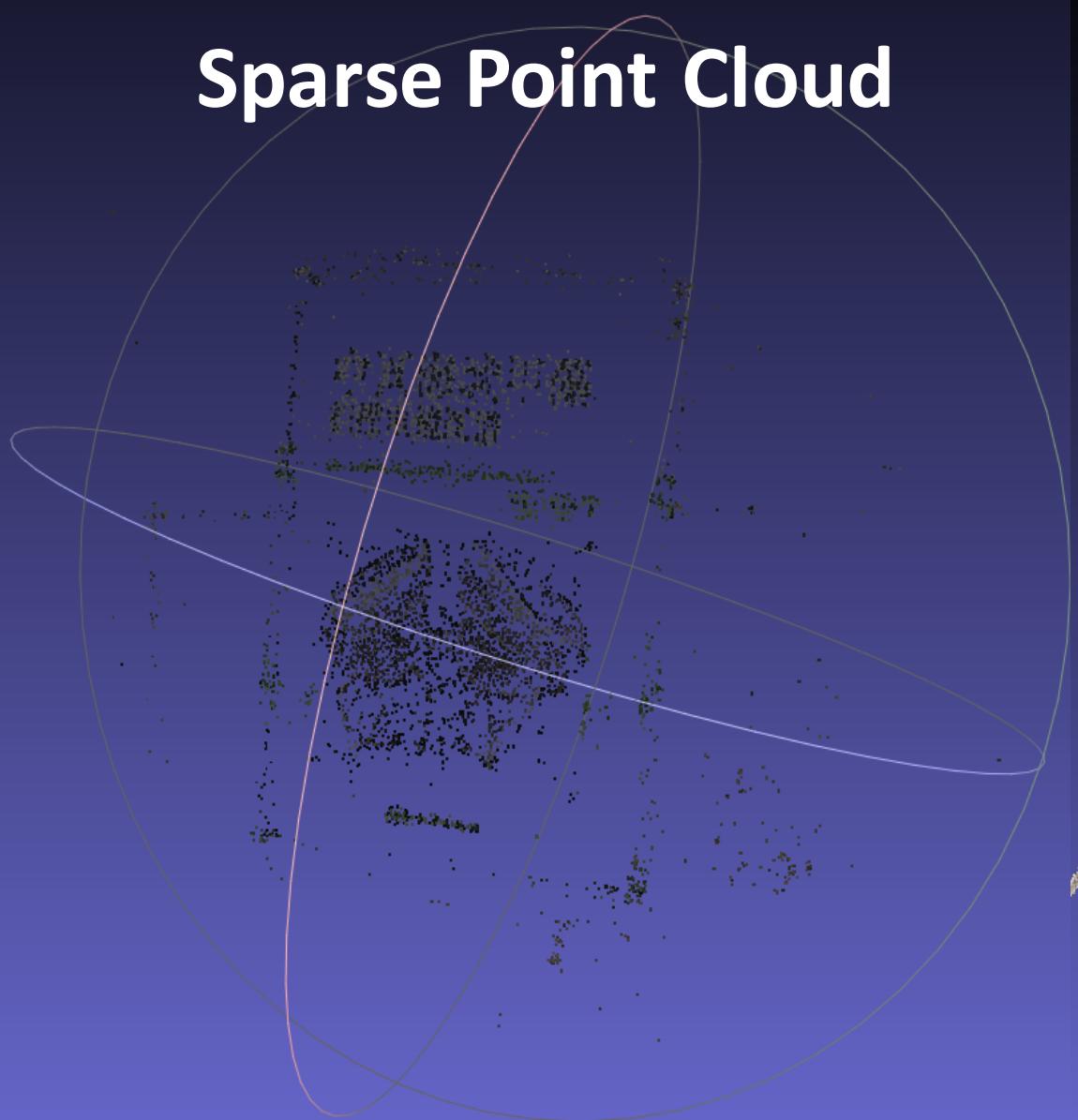
Object	Number
Cup	38
Gift box	26
Book	33

Experiment---data collection

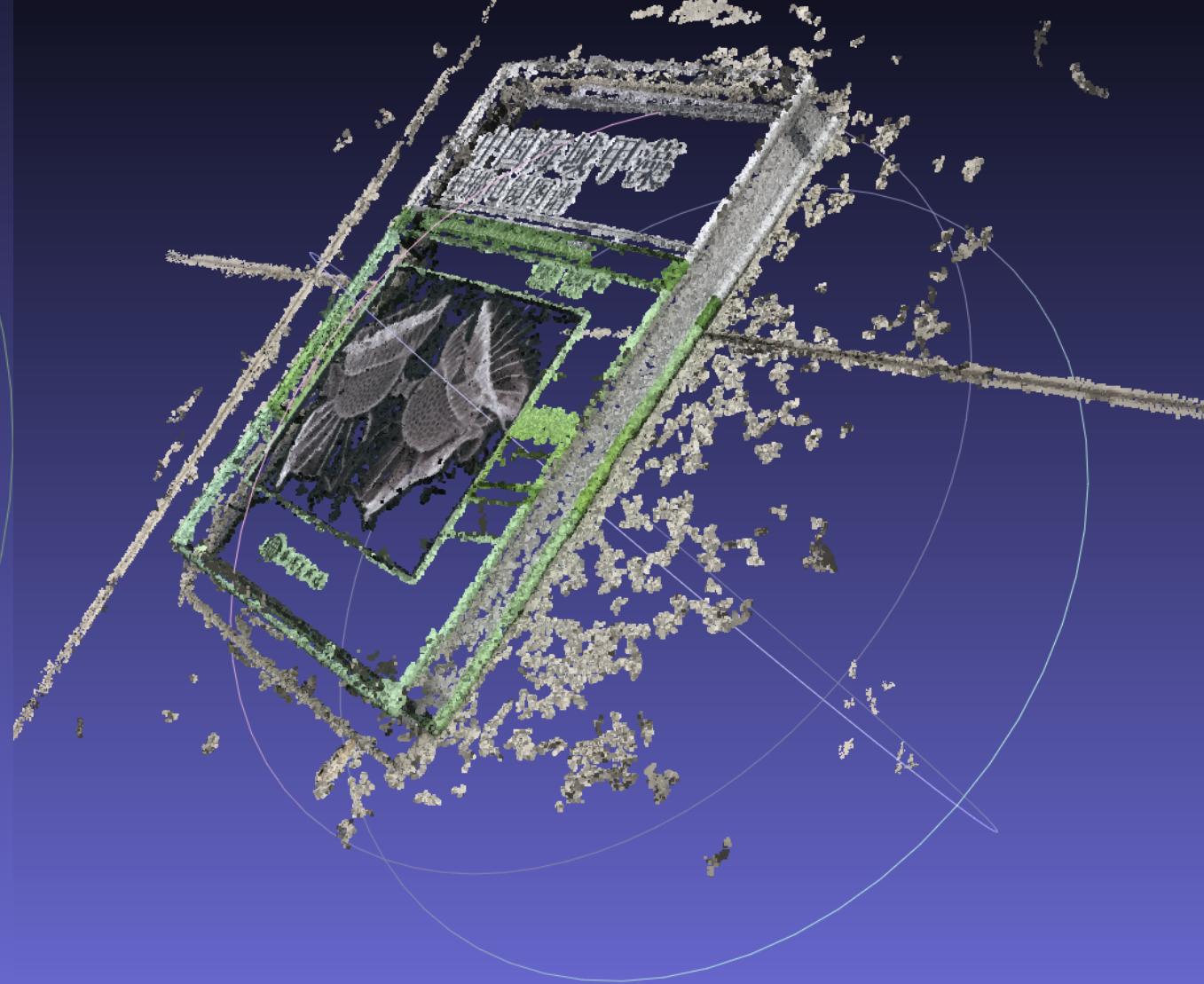


RGB

Sparse Point Cloud

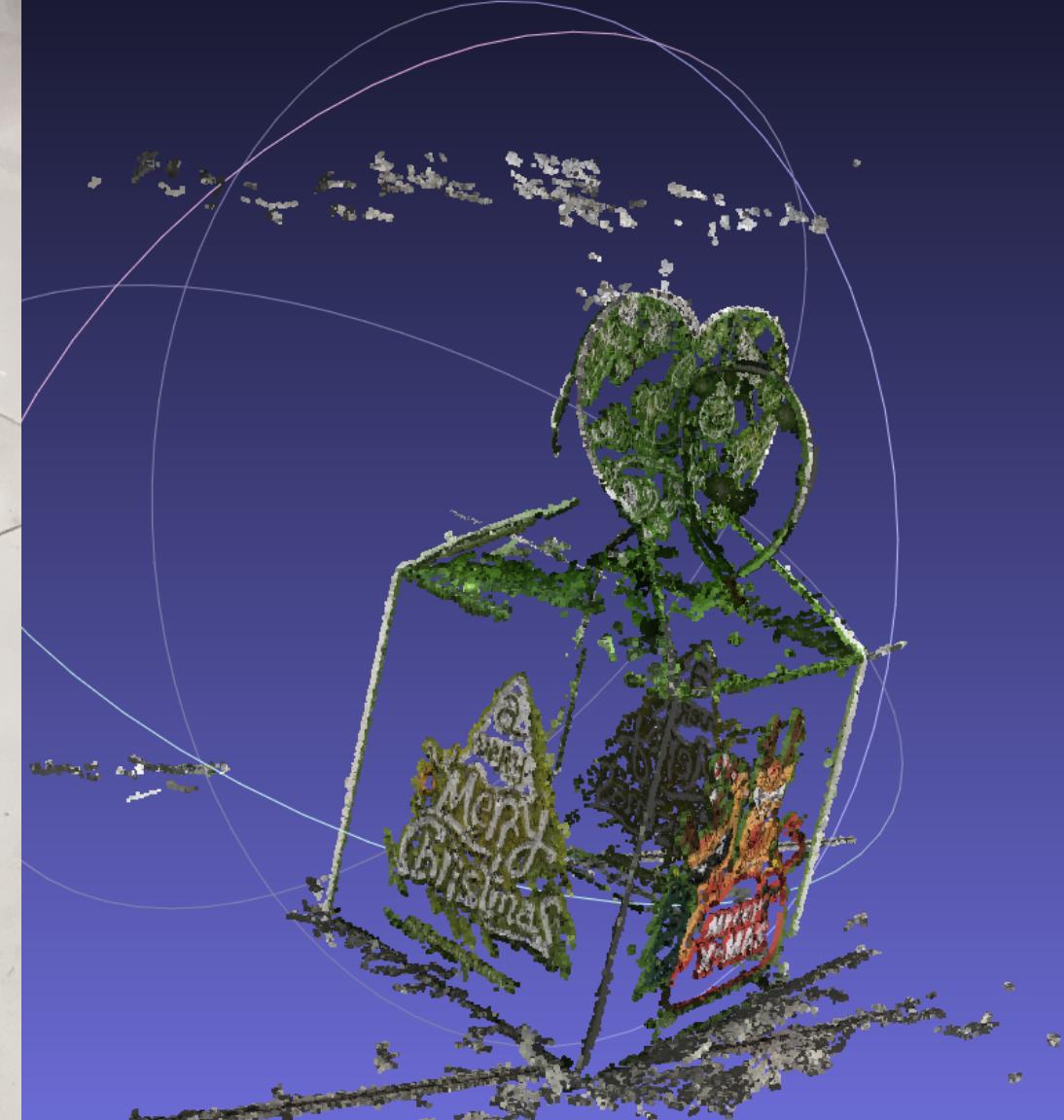


Dense Point Cloud





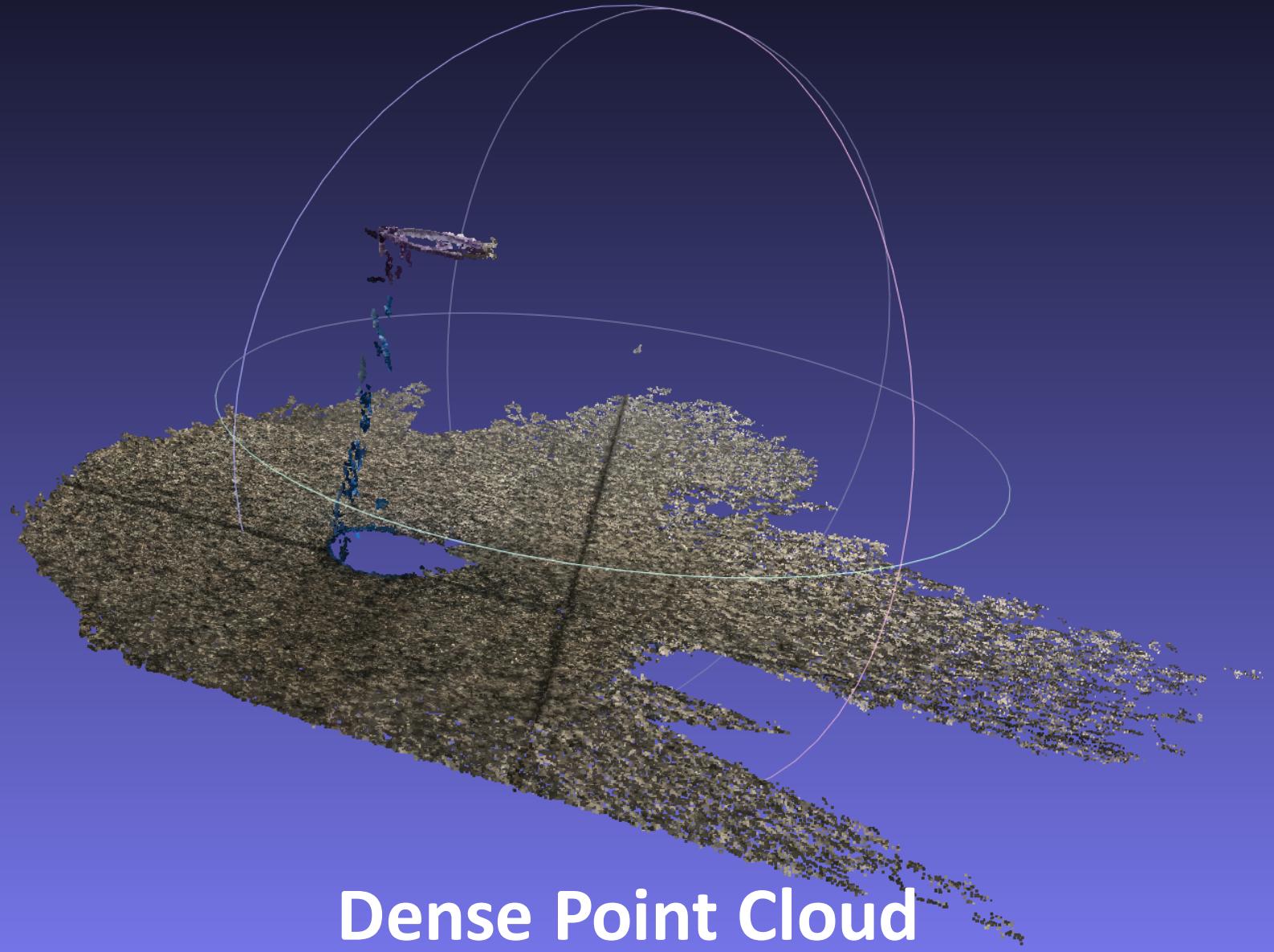
RGB



Dense Point Cloud



RGB



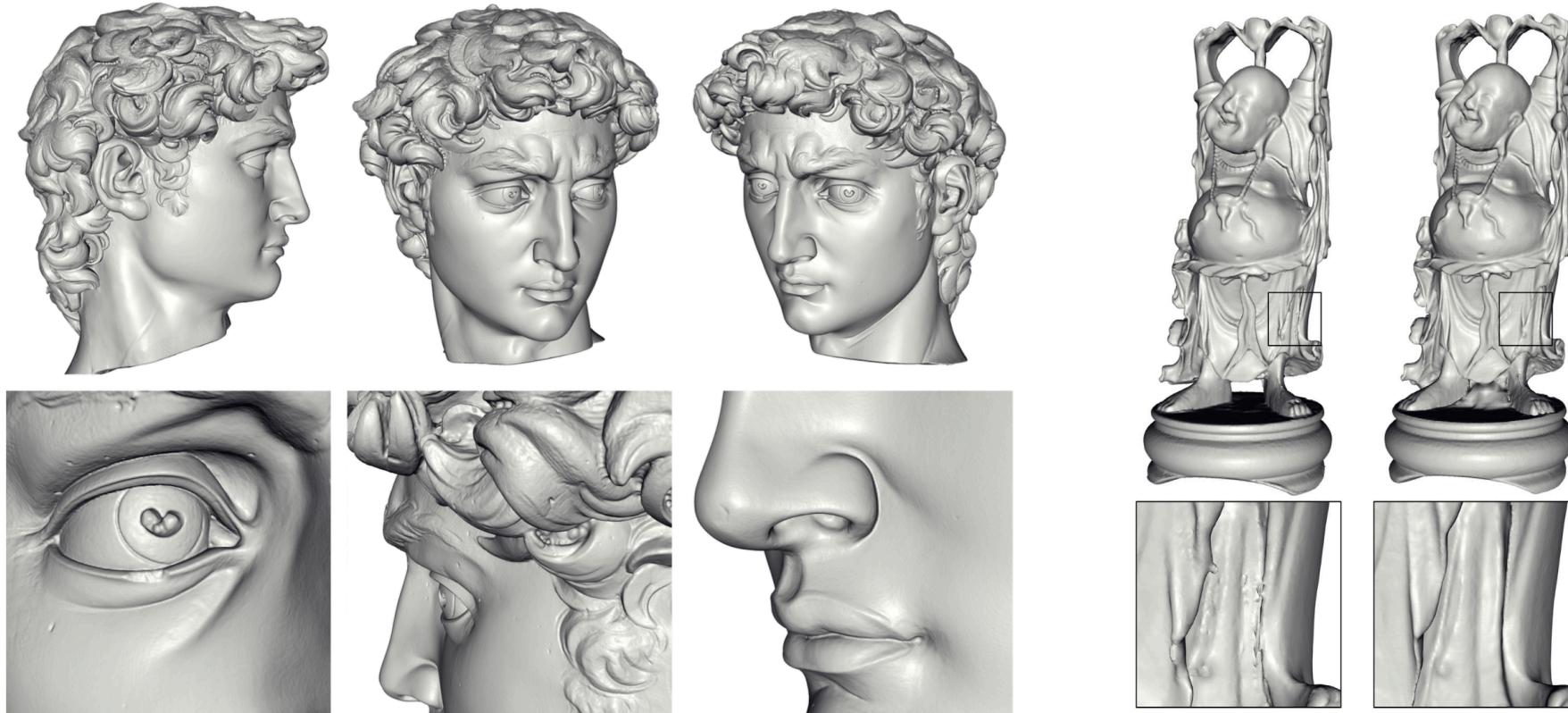
vision@ouc

Problem

- 1.lack of unfeatured points
- 2.unperfect dence point cloud

Poisson Surface Reconstruction

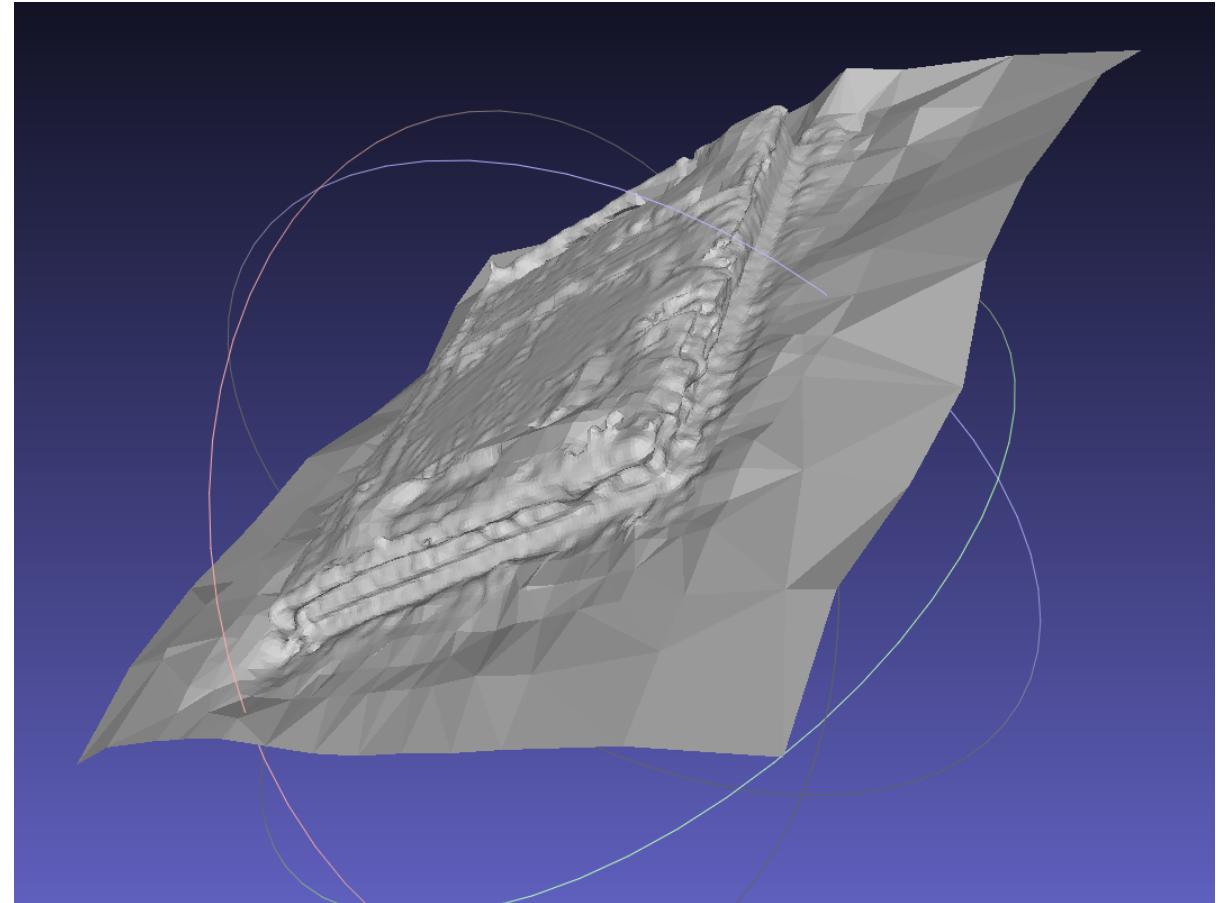
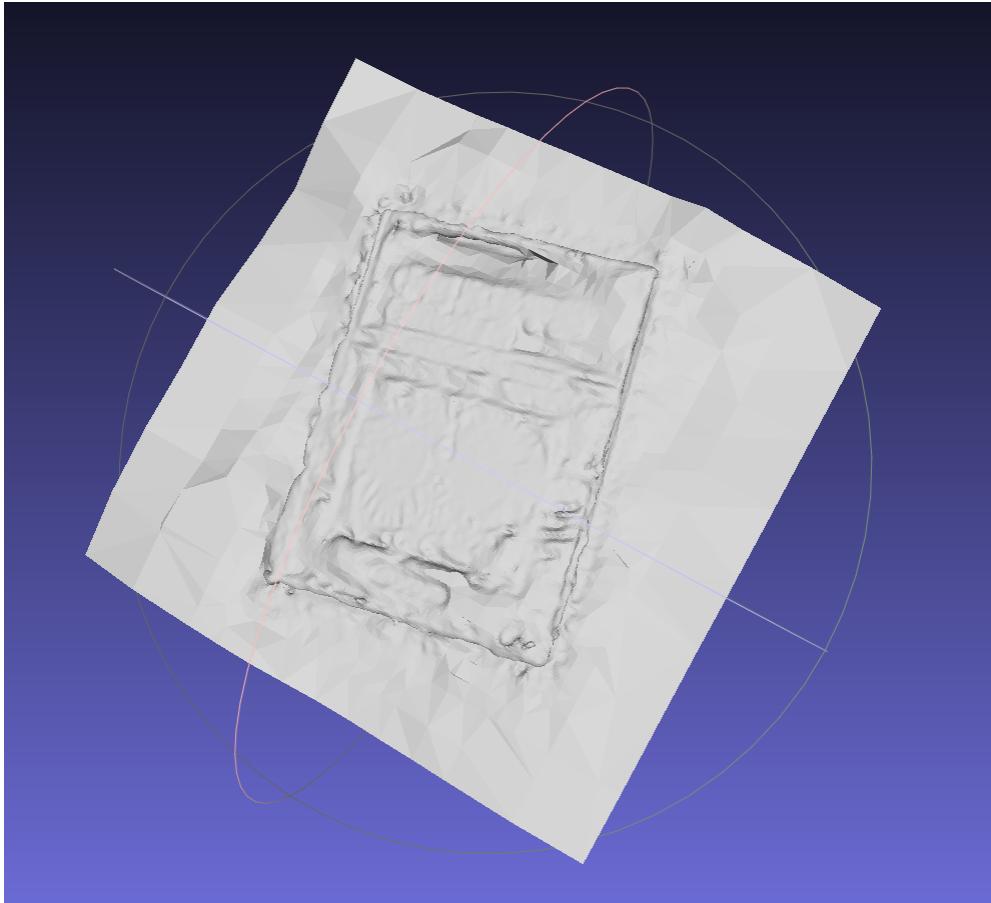
Michael Kazhdan



Kazhdan, Michael, M. Bolitho, and H. Hoppe. "Poisson surface reconstruction." *Eurographics Symposium on Geometry Processing* Eurographics Association, 2015:61-70.

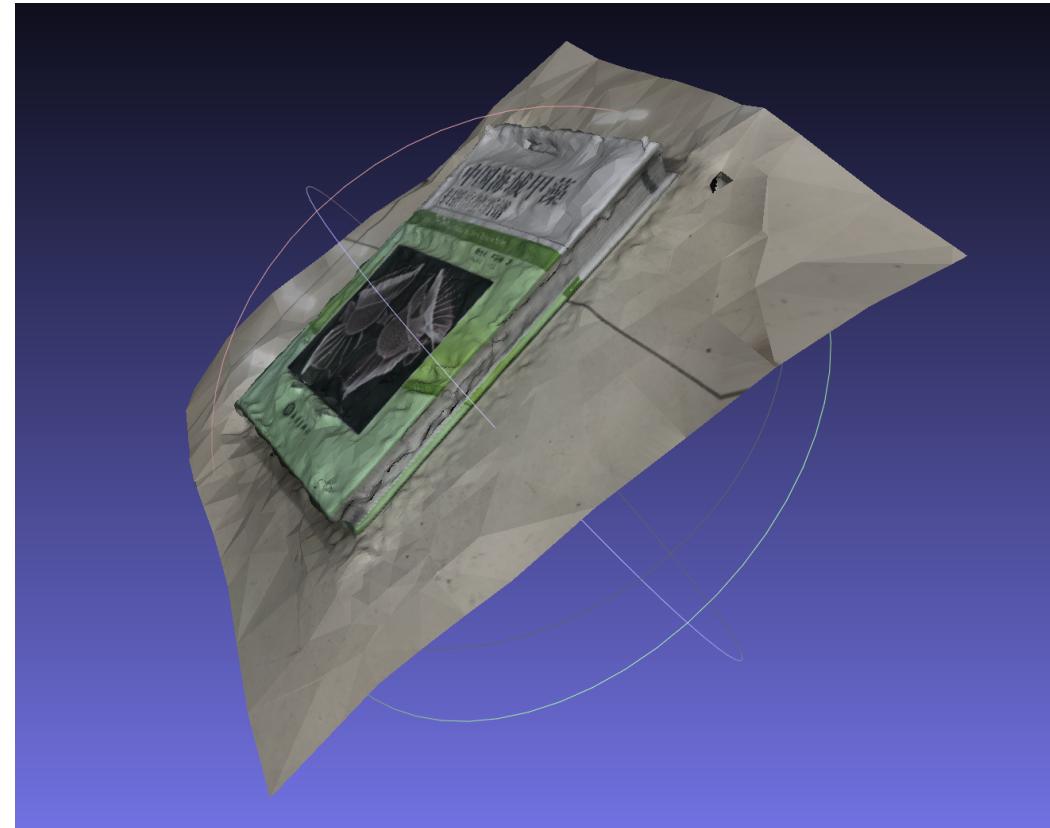
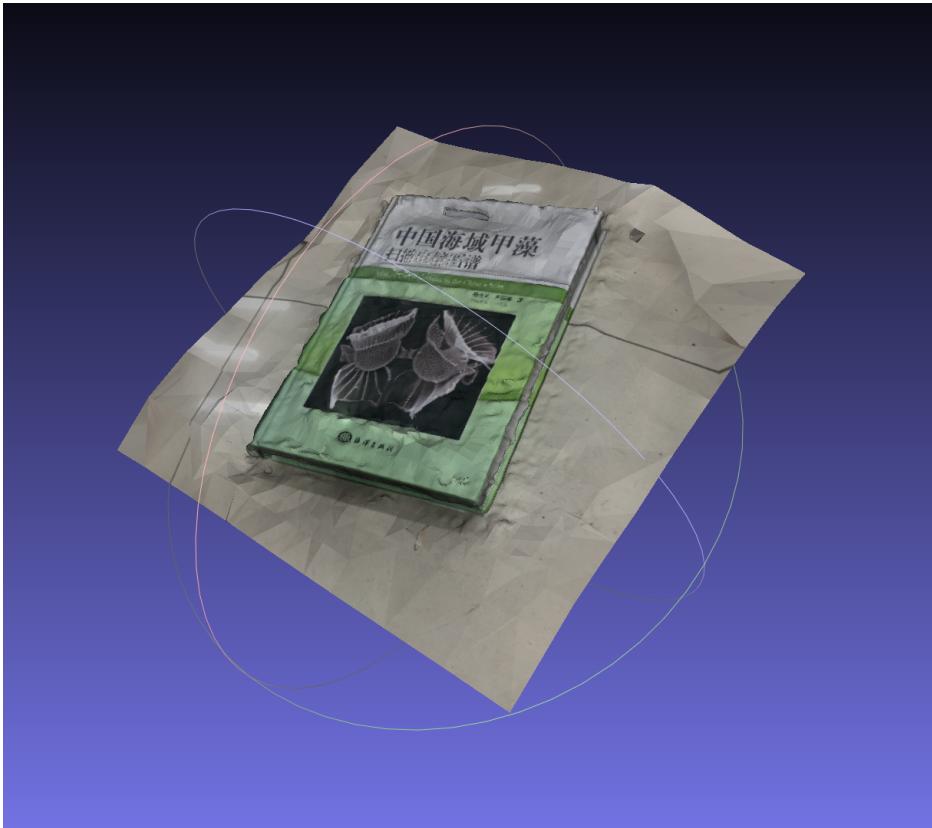
Result

Poisson Surface Reconstruction

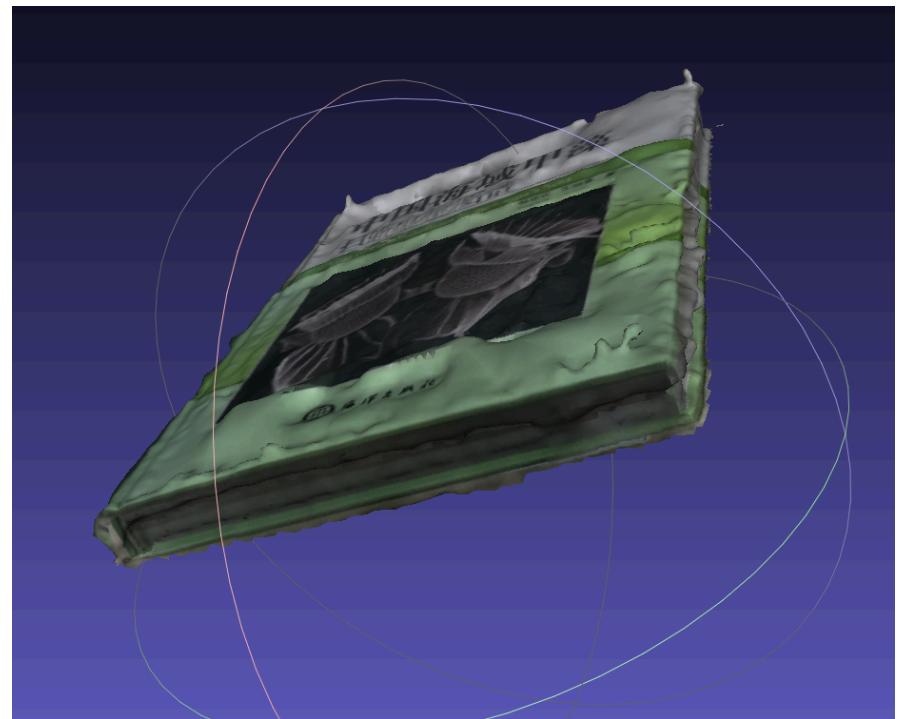
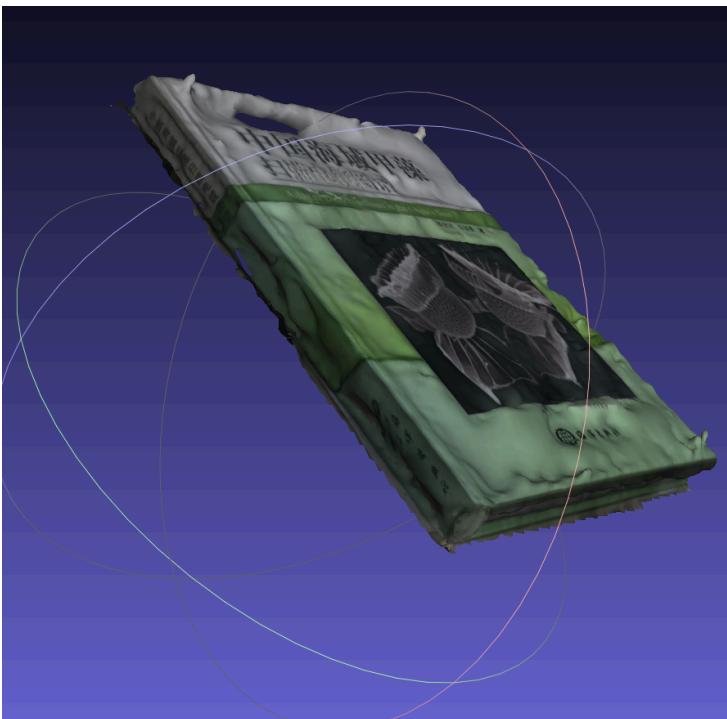
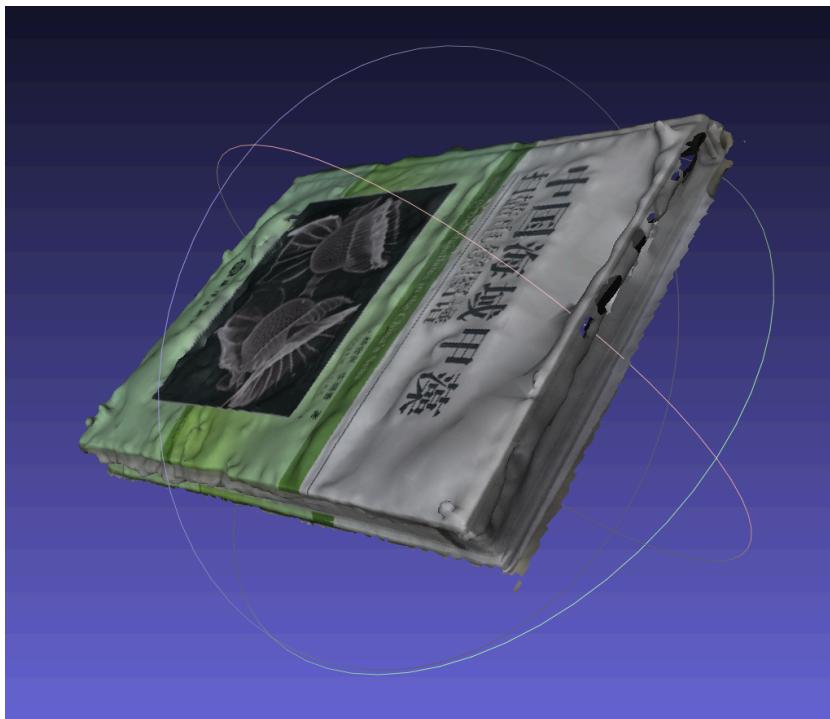


Result

Texture mapping



Final result of reconstruction



Final result of reconstruction

