

1. Environment setups

- a. Download the .exe file from the website
- b. Decompress the programming package (3D Reconstruction using the integrated MPS_MC algorithms) as Fig.1

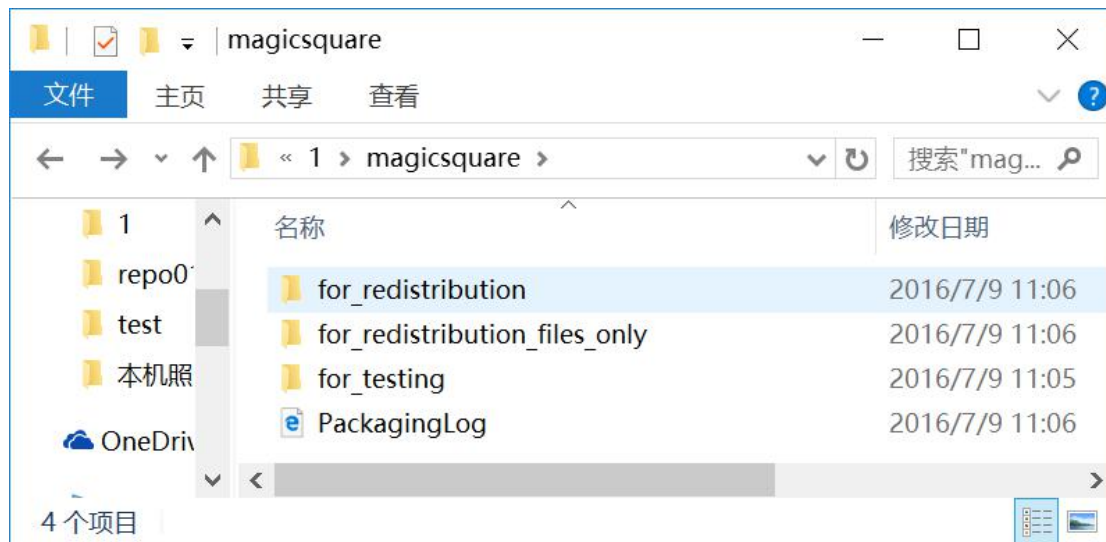


Fig.1

- c. Open the for redistribution file and install the "MyAppInstaller_web.exe" as shown in Fig.2

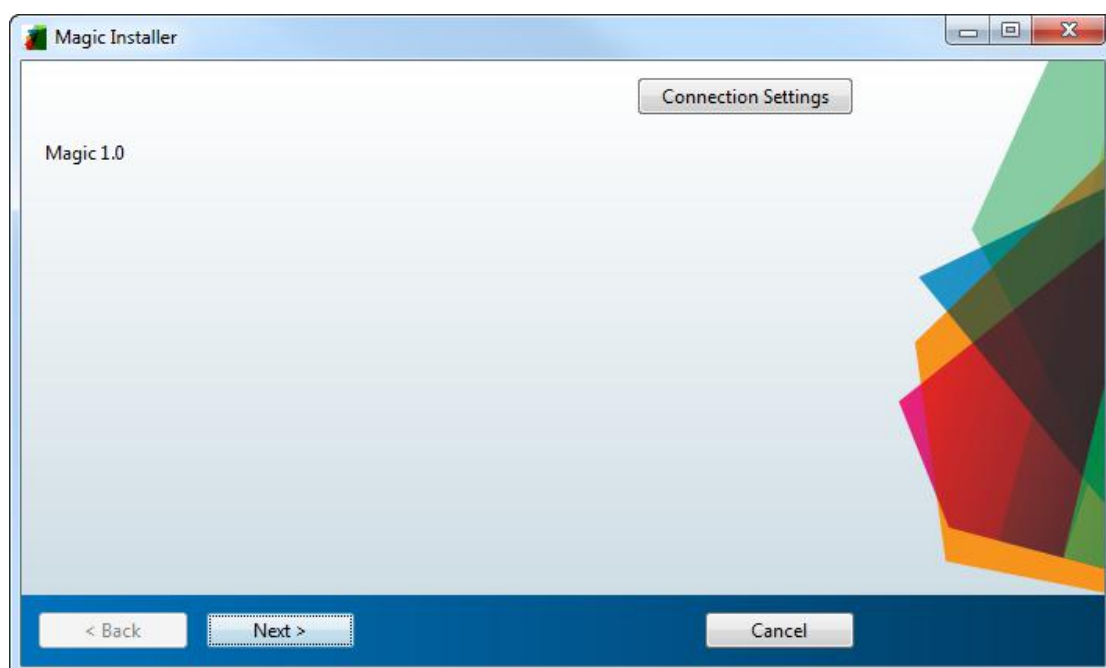


Fig.2

d. Follow the instructions until the .exe file are installed as shown in Fig.3

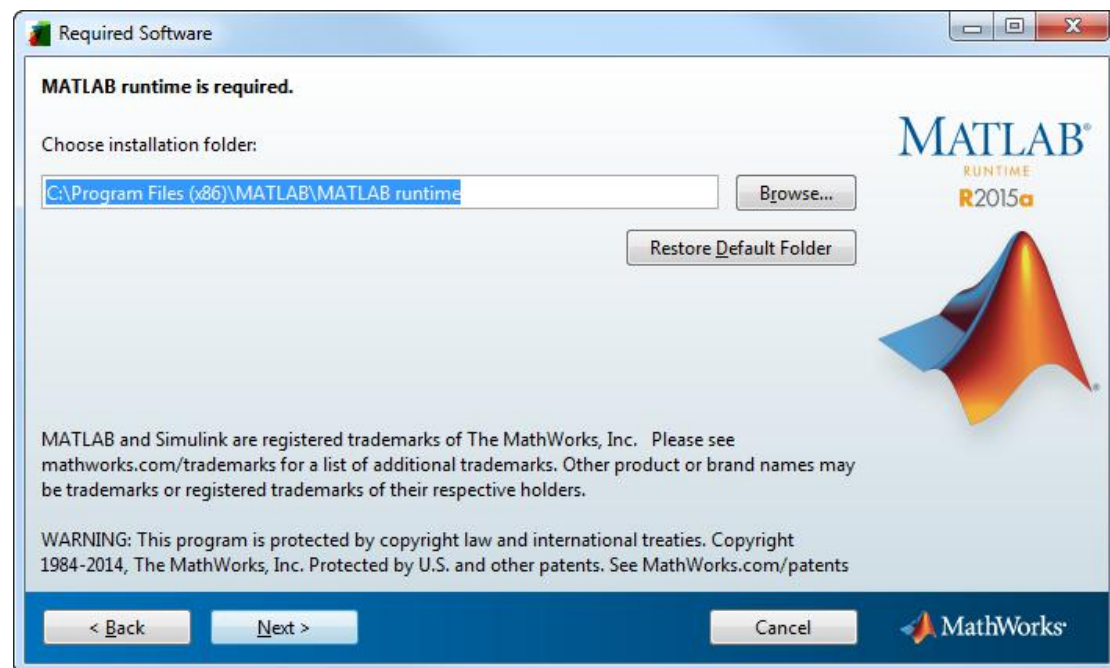


Fig.3

2. Operate the program

- Open the file `Imgread_Reconstruction.exe`
- Open your own image files (BMP)
- Result are shown in the window

Notices:

There are example dataset with small scale stored in the data file. Use the integrated algorithm of multiple point statistics (MPS) and marching cube algorithm (MC) to compute a triangulated mesh of the isosurface within the 3D matrix of scalar values C at isosurface value ISO . The 3D matrices (X,Y,Z) represent a Cartesian, axis-aligned grid specifying the

points at which the data C is given. These coordinate arrays must be in the format produced by Matlab's `meshgrid` function. Output arguments F and V are the face list and vertex list of the resulting triangulated mesh. The orientation of the triangles is chosen such that the normals point from the higher values to the lower values. Optional arguments `COLORS` and `COLS` can be used to produce interpolated mesh face colors.

The main advantage is to save computing time and memory space. If you use this program, you must cite this paper "Zhao, Z., & Zhou, X. P. (2019). An integrated method for 3D reconstruction model of porous geomaterials through 2D CT images. *Computers & Geosciences*, 123, 83-94."

If you have any suggestions for this program, you can contact me with email: zhaozhihu@163.com.