**Description**

A-300 This program is python language development of porous media 3D reconstruction algorithm, download and run it will output 300 (300\*300 pixel size) continuous slice image. In the output structure, white represents the pores and black represents the matrix.

**Installation**

Winpython64-3.10

**Requirements**

Run WinPython command Prompt in the Winpython64-3.10 installation path to install the following required file libraries：

opencv Enter the command ：pip install opencv-python

cv2 Enter the command ：pip install cv2

numpy Enter the command ：pip install numpy

numba Enter the command ：pip install numba

#Once the necessary Python library files have been installed, the A-300 program is ready to run

**Usage**

Before running the program, create A blank folder in the path of the A-300 program and change the folder name to 300. The output result will be saved in the folder.

The important parameters for running are as follows

target\_pic = '4.tif' #3D reconstruction of the reference image, the image must be black and white, can use the test image provided on github

pic\_number = 300 #The number of 3D reconstructed images

pic\_row = 300 # Reconstruct the width of the image

pic\_column = 300 # Reconstruct the length of the image

critical\_zone\_number = 8 # The transition threshold of cellular automata model

for size in range(0, 51, size\_gap): #5151 is the maximum statistical distance between a two-point line segment and a linear path function

markovlength = 10000 # Number of Markov iterations

decayscale = 0.99 # Temperature coefficient

temperature = 100 # Initial temperature