**For Simulation** (Need the "Blender" installed with Add-ons "Cell Fracture", and operate it in the blender API or use the command terminal)

The specific Simulation steps are divided into two phases:

**Step 1.** Generate the whole pottery from the profile sketch (.json), then randomly break it into pieces and get the piece’s data files (.fbx)

1. The pieces without decorations (need to change the type and set the path to the profile file and output)

**copy the code form “Simulation/Gen\_And\_Sherd\_Vertices.txt” and run it in the Blender script.**

A screenshot of a computer

Description automatically generated with medium confidence

**Parameters**

Text

Description automatically generated with medium confidence

“Pot\_Type” is the pottery type, and “S\_Limit” is the pieces numbers from the whole pottery.



“Test\_Path\_out” is the output path, and the “path\_to\_profiles” is the profiles folders.

**Notes:** This process is only suited for that pottery without decoration patterns as the profile sketches are drawn only from shapes.

1. The pieces with decorations (need to set the path to the blender file and output)

For dr37a, there is a different way as I manually make pottery with a decoration pattern (.blend). Then break it into piece data files (.fbx)

**copy the code form “Simulation/Sherd\_batch\_decoration\_vertices.txt” and run it in the Blender script.**

**Parameters need to change:**



“blender\_file” refer to the path to the pottery with decoration pattern files “Decoration\_Model /dr37a\_pattern.blend” .

**Step 2.** Generate the simulation dataset from six different angles using the .fbx file from the first step.

This process takes four to five times as many resources as the first step, so I move it to MaGpu2.

(Need to reset the path)

**Copy the code from “Simulation/MaGpu\_Python” and run the script in the Blender.**

**Or use the command “blender -b -P Path” in the command terminals.**

**Parameters need to change:**

Text

Description automatically generated

“Render\_directory” refers to the folder which contains .fax files, and the “Render\_output” is the picture output path.

Notes: Magpu2 can run commands in parallel, saving much time.