Exercise

Extract a mesh from a voxels grid and manipulate it on Blender

Prerequisite: Installing the addon from the zip file and delete everything in the scene.

1. Use Fiji to open the "Rascasse" image that you downloaded.
2. The image is a ".raw" meaning that the file contains pure data, not compressed and without meta-data. So you will have to configure the opener manually:
    - Image type: 16-bits
    - width: 380
    - height: 382
    - offset: 0
    - number of images: 892
    - gap: 0
    - white == 0: No
    - Little-endian: No
    - All files: No
    - Virtual stack: No
3. Once we reach that point, we must build our isosurface. In this exercise, we will base ourselves on the intensity to find the structure we are interested in. You can try to pick either the skeleton or the whole skin + the skeleton.
4. The marching cube is natively present in Fiji, and its result is exported in a ".obj" file. Once you finish making a mask from

your image (by thresholding), you can go in: File > Save As > Wavefront .OBJ

5. You can now switch to Blender. Open the file through: File > Import > Wavefront (.obj) and pick your file.
6. To navigate in the 3D view of Blender, your right index finger should never leave the wheel of the mouse and your left index finger should not leave the shift key:
    a. wheel-click: orbit
    b. wheel-click+shift: pan
    c. wheel: zoom
7. You can press the dot (.) from the numpad to center your view on the active object.
8. By pressing [N], we will see the toolbox, in which, if the plugin is correctly installed, you should see a "Tools" tab.

A. The first function "Simplify and smooth" removes one vertex out of two and interpolates the remaining vertices.
B. "Keep largest islands" searches for the biggest connected component and discards all others, as they are certainly resulting from the noise.
C. The "Curvature" creates a vertex attribute between 0 and 1 representing the local curvature at each vertex. You can display its result by passing in "viewport shading", in the upper-right corner of the viewer (the sphere with a chessboard pattern)

To do along a demonstration:

Blender is primarily a mesh-edition software.
If your segmentation is still bad, you can manually fix the mesh, either with Blender modifiers, or by editing the mesh yourself.
The modifiers (functions that you can apply to the mesh) are in the right column, with the wrench icon.

To manually fix de mesh, press the "tab" key, and you can now select vertices and move them by pressing the G key once, and clicking to confirm the new position.