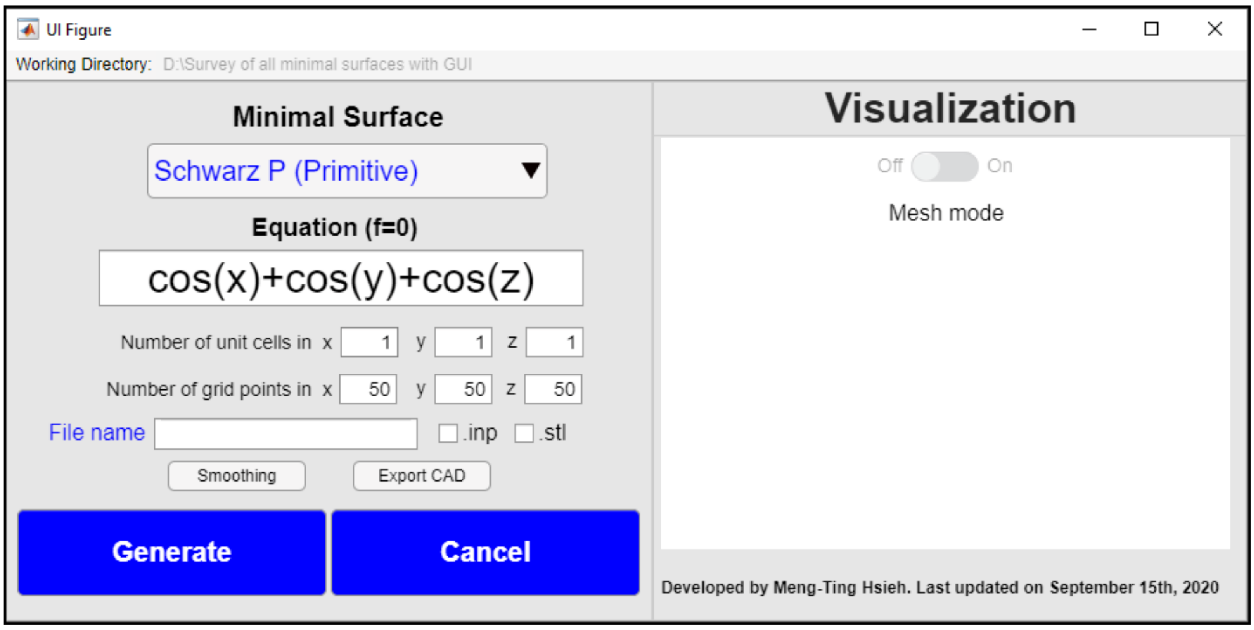
*Please run MiniSurf_v2.0.exe as administrator.

This open-source software *MiniSurf* provides an easy tool to generate common minimal surface CAD files in .inp for finite element analyses through Abaqus (3ds.com) and .stl for 3D printing.

Upon clicking on the executable MiniSurf , a GUI panel appears.

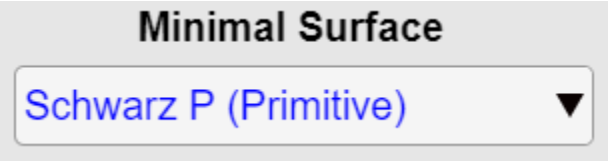


The left panel requires the user to input desired parameters while the right panel shows the visualization.

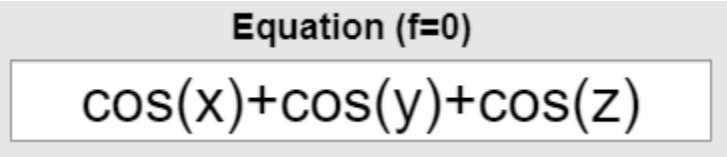
Left panel (input parameters):

1. Minimal surface dropdown allows the users to select the minimal surface in our library.

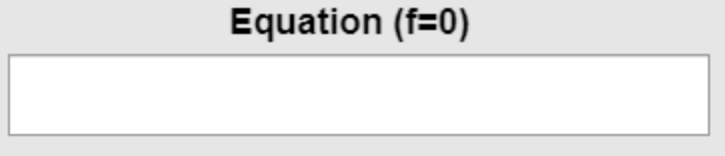
Users can use the custom level-set equation to produce minimal surfaces that are not in our library.



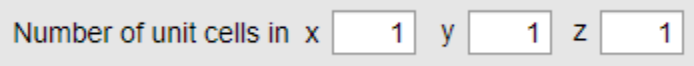
2. The level-set equation representing the selected minimal surface is displayed under the equation (f=0) window.



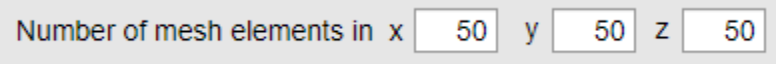
This is also where users can type in their custom equation.



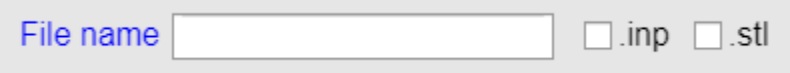
3. Number of unit cells allows uses to put input the number of repetitive minimal surfaces in x, y and z-direction.



4. Number of elements allows users to increase or decrease mesh intensity of the final surfaces. Note, number of elements represents the initial mesh grid in a cubic volume. It does not represent the number of elements in the final surface.

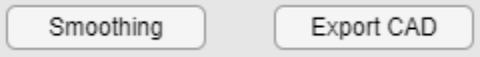


5. Users can choose to only see visualization (leave anything blank; faster) or generate the CAD files (by inputting a file name and ticking on the box before .inp or .stl or both).



6. The generate button generates the visualization of CAD files while the cancel button stops and kills the generation process.

7. Users can smooth the generated mesh with the smooth push-button and export the CAD files (extensions selected in step 5).



Right panel:

It shows the visualization of the selected minimal surface. Mesh mode can be turned on by using the mesh mode switch.