MesherSubsonic.py Instructions

Parameters that can be Altered

- Number of elements per line or BSpline
  - variables in line 175 to 180
- Progression of elements(towards one end)
- Bump in BSpline 7(towards both ends)
- Distance to rear rectangle
  - d_rear_rect = 20
- Distance to inner mesh(enclosure of airfoil)
  - d_in = 0.25
- Distance to outer mesh(enclosure of entire domain)
  - d_in_out = 10
- Original Point File
  - Line 7
- Output .geo file name
  - Line 13
- Rotate Trailing Edge → **Beta State**
  - In Line 15 place the degrees for which the tail is to be rotated(deg)
  - In Line 16 X_Rt place the x coordinate from which to rotated(X_Rt)
- Desired Output formats depending on program
  - SU2 if Line 12 is equal to 0
  - OF if Line 12 is equal to 1

Instructions for Points File

- Download Airfoil file from airfoil tools using Selig format
- Delete the Last Line of the file
- Make sure there is only one space between column of x and y
- Make sure zero spaces between x and start of the row
- Make sure top row contains two columns of non relevant data such as airfoil name and camber

Troubleshooting

S Shaped Airfoil

- If in gmsh a part of the airfoil appears to be a horizontal s this can be due to the constraints placed on what is top and bottom being too relaxed.
- In lines 77,79,96,98 in the conditional statements segments are as follows
  - abs(((**abs(ycord[0+a]))-(abs(ycord[1+a]))) > 0.03)** and (((xcord[0+a] + xcord[1+a])/2) < 0.80):
- This segment states that the differences to classify as part of this section must be greater that 0.03 by altering the 0.03 that may make the horizontal s disappear.

Line Across ResultsWith Origin at Airfoil Trailing Edge

- To be able to fix this problem make sure that the elements which are leaving the traing edge of the airfoil are as similar to their neighbors in size
- Furthermore, be cautious when having very high aspect ratio elements