VMTK notater

Pipeline:

Stå i «geometrier»

1. Konverter fra .stl til .vtp med:

vmtksurfacewriter -ifile STLfiler/AAAxxx.stl -ofile steg1/AAAxxx.vtp

2. Klipp renals med:

vmtksurfaceclipper -ifile steg1/AAAxxx.vtp -ofile steg2/AAAxxx\_cl.vtp

3. Cap renals med:

vmtksurfacecapper -ifile steg2/AAAxxx\_cl.vtp -ofile steg3/AAAxxx\_cap.vtp

4. Remesh med:

vmtksurfaceremeshing -ifile steg3/AAAxxx\_cap.vtp -ofile steg4/AAAxxx\_remesh.vtp -elementsizemode edgelength -entityidsarray CellEntityIds -preserveboundary 1 -edgelength 0.5

Da får renal caps pene triangler

5. Smooth overflaten med:

vmtksurfacesmoothing -ifile steg4/AAAxxx\_remesh.vtp -passband 0.1 -iterations 1000 -ofile steg5/AAAxxx\_sm.vtp --pipe vmtksurfaceviewer

Nå ser renals pene ut

Sjekk volum og smoothing med:

vmtksurfacemassproperties -ifile steg4/AAAxxx\_remesh.vtp

vmtksurfacemassproperties -ifile steg5/AAAxxx\_sm.vtp

vmtksurfacereader -ifile steg4/AAAxxx\_remesh.vtp --pipe vmtksurfacesmoothing -iterations 1000 -passband 0.1 --pipe vmtkrenderer --pipe vmtksurfaceviewer -display 0 --pipe vmtksurfaceviewer -i @vmtksurfacereader.o -color 1 0 0 -display 1

6. Klipp inlet og outlets med:

vmtksurfaceclipper -ifile steg5/AAAxxx\_sm.vtp -ofile steg6/AAAxxx\_io.vtp

7. Lag extensions med:

vmtksurfacereader -ifile steg6/AAAxxx\_io.vtp --pipe vmtkcenterlines -seedselector openprofiles --pipe vmtkflowextensions -adaptivelength 1 -extensionratio 10 -normalestimationratio 1 -interactive 0 --pipe vmtksurfacecapper --pipe vmtksurfacewriter -ofile steg7/AAAxxx\_ex10.vtp

8. Remesh med:

vmtksurfaceremeshing -ifile steg7/AAAxxx\_ex10.vtp -ofile steg8/AAAxxx\_ex10\_remesh.vtp -elementsizemode edgelength -entityidsarray CellEntityIds -preserveboundary 1 -edgelength 0.5

9. Scale med:

vmtksurfacescaling -ifile steg8/AAAxxx\_ex10\_remesh.vtp -scale 0.1 -ofile steg9/AAAxxx\_ex10\_scaled.vtp

10. Lag ModelFaceIDs med:

Kjør create\_ModelFaceID script fra “Onedrive-Sintef” med:

/Applications/SimVascular.app/Contents/Resources/simvascular --python -- scripts/create\_ModelFaceID.py Simvascular/geometrier/steg9/AAAxxx\_ex10\_scaled.vtp Simvascular/geometrier/steg10/AAAxxx\_FaceID.vtp

11. Mesh med:

Kjør Patryk\_Magnus script fra “Onedrive-Sintef” med:

/Applications/SimVascular.app/Contents/Resources/simvascular --python -- scripts/sv\_volume\_meshing\_Magnus.py Simvascular/geometrier/steg10/AAAxxx\_FaceID.vtp Simvascular/geometrier/steg11/AAAxxx\_0.15\_ Simvascular/input/face\_dict.csv 0.15

Må bruke annen face\_dict hvis modelFaceIDs er forskjellig fra:

|  |
| --- |
| wall,1 |
| outlet\_iliac\_left,2 |
| inflow,3 |
| outlet\_iliac\_right,4 |

12. Compute centerlines med:

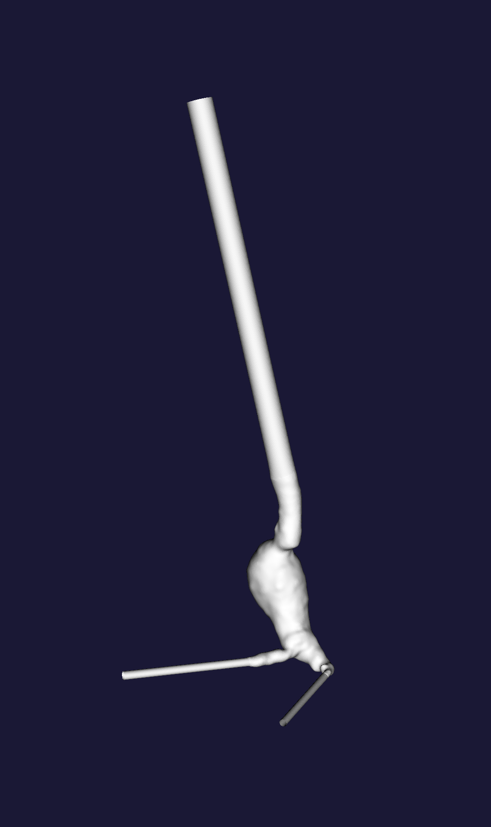
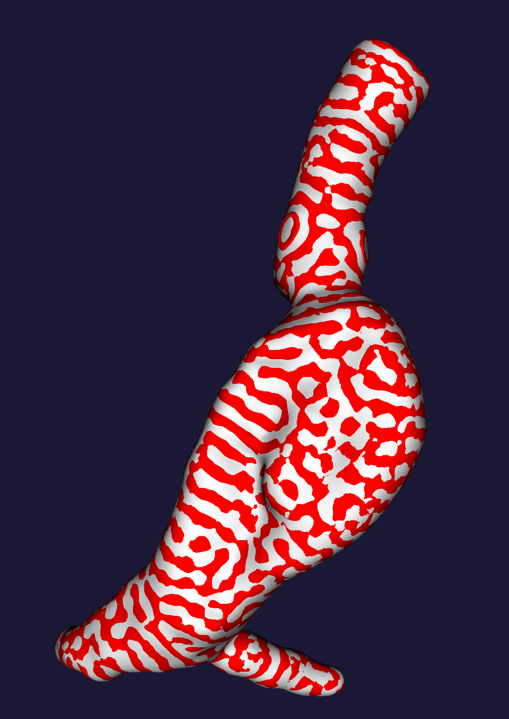
vmtkcenterlines -ifile steg9/AAAxxx\_ex10\_scaled.vtp -ofile VMTKcenterlines/AAAxxx\_centerline.vtp

Smoothing notater:

Bruker iterations=1000 og passband=0.1. Prøvde med passband=0.2, endret for lite, og 0.01 endret for mye. Iterations=100 gir en spatial shift som vi ikke vil ha, står i vmtk documentation at man bare øker iterations.

Her har jeg brukt it=1000 og pb=0.1 som det står i steg 6. Ser ganske greit ut. Volummessig: Orig= 253940.41 og Smooth= 253926.79. Overeflate: Orig.= 32232.72 og Smooth= 32180.66

Regner med at dette er mm^3 og mm^2



Kjørte så steg 7 og det til høyre ble resultatet:

* AAA088\_remesh.vtp
  + Volume: 191856.48
  + Surface area: 24849.15
* AAA088\_sm.vtp
  + Volume: 191861.86
  + Surface area: 24813.14



Ble litt skarp kant i overgangeen fra left iliac til extension.

* AAA087\_remesh.vtp
  + Volume: 162073.37
  + Surface area: 23926.21
* AAA087\_sm.vtp
  + Volume: 162043.54
  + Surface area: 23846.39

TetGen Meshing Finished...

**ubuntu@svmagnus4**:**~**$ sudo su -

root@svmagnus4:~# cd /mnt

root@svmagnus4:/mnt# ls

root@svmagnus4:/mnt# mkdir filedirec

root@svmagnus4:/mnt# mount -t ceph 192.168.0.9:6789,192.168.0.4:6789,192.168.0.5:6789,10.219.248.145:6789:/volumes/\_nogroup/46d1859a-bf96-429e-a85a-22324add5fa6/3c5484bd-7676-406c-9a1d-00a2a682d701 -o name=Rule2,secret=AQD0Be1nhArfDRAAr/LfjJzDz6XOmTCRCpYWiw==

mount: 192.168.0.9:6789,192.168.0.4:6789,192.168.0.5:6789,10.219.248.145:6789:/volumes/\_nogroup/46d1859a-bf96-429e-a85a-22324add5fa6/3c5484bd-7676-406c-9a1d-00a2a682d701: can't find in /etc/fstab.

root@svmagnus4:/mnt# mount -t ceph 192.168.0.9:6789,192.168.0.4:6789,192.168.0.5:6789,10.219.248.145:6789:/volumes/\_nogroup/46d1859a-bf96-429e-a85a-22324add5fa6/3c5484bd-7676-406c-9a1d-00a2a682d701 -o name=Rule2,secret=AQD0Be1nhArfDRAAr/LfjJzDz6XOmTCRCpYWiw== /mnt/filedirec

root@svmagnus4:/mnt# df -h

Filesystem Size Used Avail Use% Mounted on

udev 25G 0 25G 0% /dev

tmpfs 5.0G 1.5M 5.0G 1% /run

/dev/vda1 39G 12G 28G 30% /

tmpfs 25G 3.2M 25G 1% /dev/shm

tmpfs 5.0M 0 5.0M 0% /run/lock

tmpfs 25G 0 25G 0% /sys/fs/cgroup

/dev/loop2 45M 45M 0 100% /snap/snapd/23545

/dev/loop0 92M 92M 0 100% /snap/lxd/29619

/dev/loop1 64M 64M 0 100% /snap/core20/2434

/dev/vda15 105M 6.1M 99M 6% /boot/efi

tmpfs 5.0G 40K 5.0G 1% /run/user/124

tmpfs 5.0G 28K 5.0G 1% /run/user/1001

/dev/loop3 92M 92M 0 100% /snap/lxd/32662

/dev/loop4 64M 64M 0 100% /snap/core20/2496

/dev/loop5 45M 45M 0 100% /snap/snapd/23771

tmpfs 5.0G 4.0K 5.0G 1% /run/user/1000

192.168.0.9:6789,192.168.0.4:6789,192.168.0.5:6789,10.219.248.145:6789:/volumes/\_nogroup/46d1859a-bf96-429e-a85a-22324add5fa6/3c5484bd-7676-406c-9a1d-00a2a682d701 100G 0 100G 0% /mnt/filedirec

root@svmagnus4:/mnt# chown magnus:magnus /mnt/filedirec

root@svmagnus4:/mnt# exit

dldknvc df