



NA-MIC

National Alliance for Medical Image Computing

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Slicer3 Tutorial

Registration Library Case 05: Knee MRI: model/surface registration

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Introduction

- We have knee MRI images from two separate individuals, incl. segmented femur and tibia from which surface models have been created.
- We seek to roughly align the two spaces for purposes of using presegmented atlases as initial estimates for segmentation
- Because the MRI images themselves provide insufficient contrast for a robust registration, we use the surface models to determine the affine transform.



subject 1

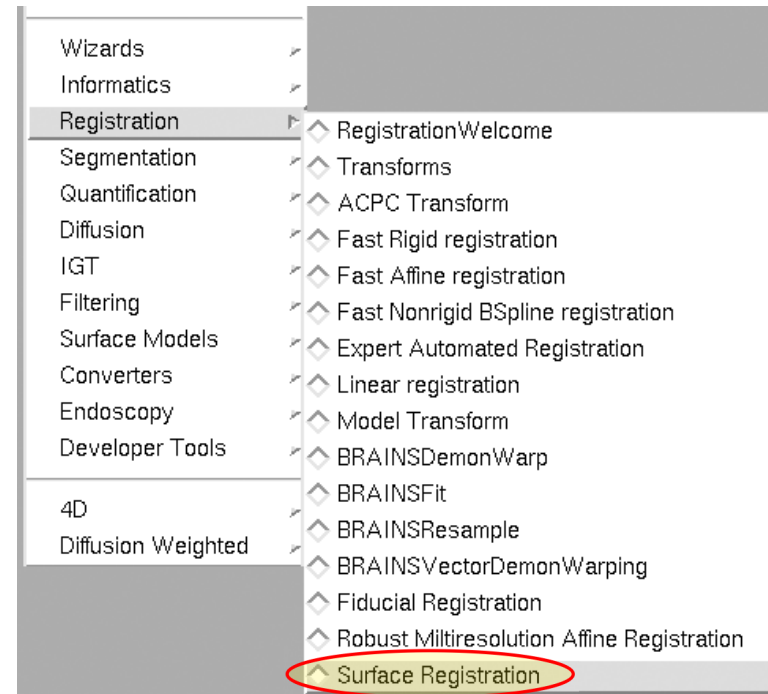


subject 2



Surface based alignment

Open the *Surface Registration* module

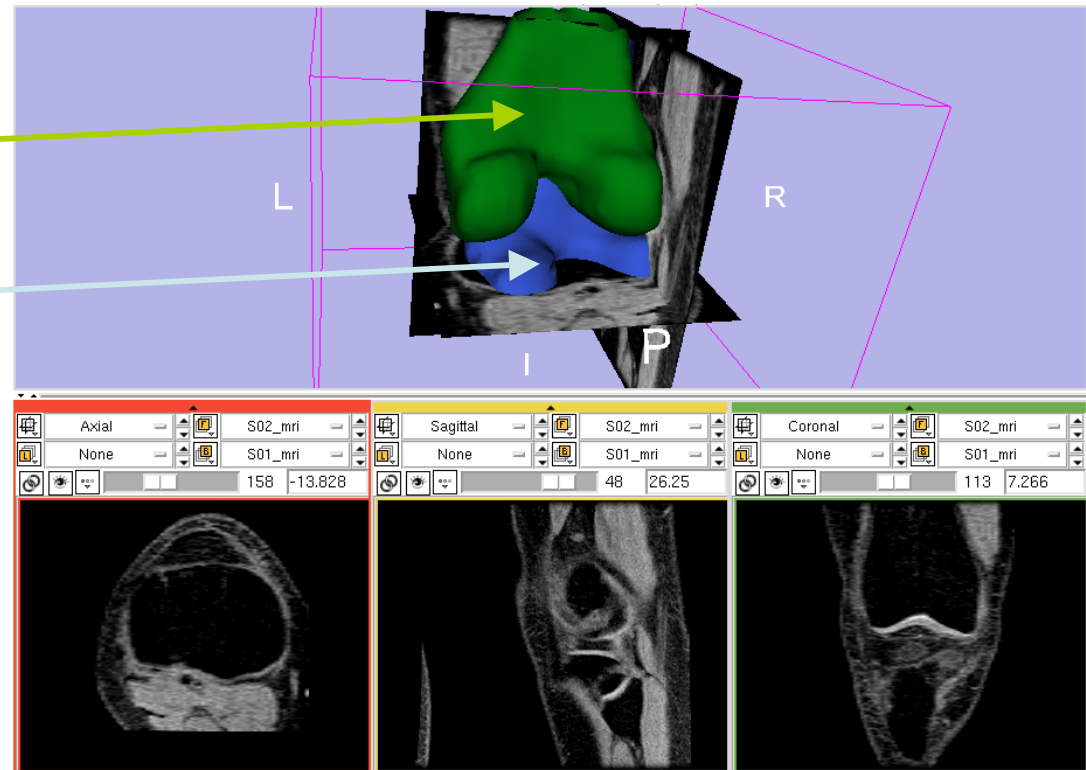




Surface based alignment

Femur model fo subject 1

Femur model fo subject 2





Surface Registration

Input Surface: S02_femur
Target Surface: S01_femur
Output Transform: Xf1_surf_S2-S1

Surface Registration

Parameter set: Xf1_Surf_S02-S01

Status: Idle

Surface ICP Registration Parameters

Landmark transform mode: RigidBody Similarity Affine

Mean distance mode: RMS AbsoluteValue

Maximum number of iterations: 50

Maximum number of landmarks: 200

Start by matching centroids:

Check mean distance:

Maximum mean distance: 0.01

IO

Initial transform: None

Input Surface: |

Target Surface: |

Output Surface: |

Output transform: Xf1_surf_S2-S1

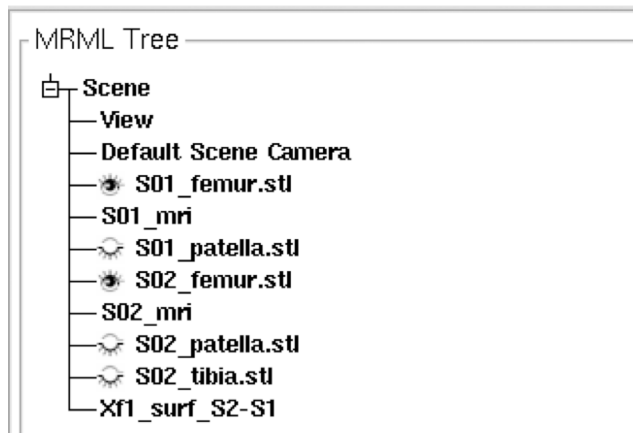
Default Cancel Apply



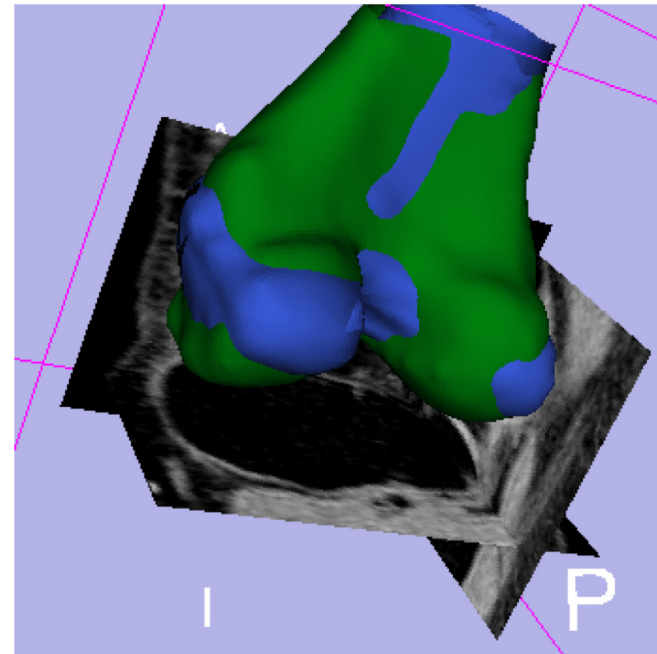
Results

Data Module:

Move S02_femur.stl inside the new transform node to see the result (see animated gif below)



animated gif, view in presentation mode





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