DIP ASSIGNMENT

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AG#: 2019-AG-6061

CLASS: BSCS 6th

SUBJECT: Digital Image Processing

DATE: 19 May, 2022

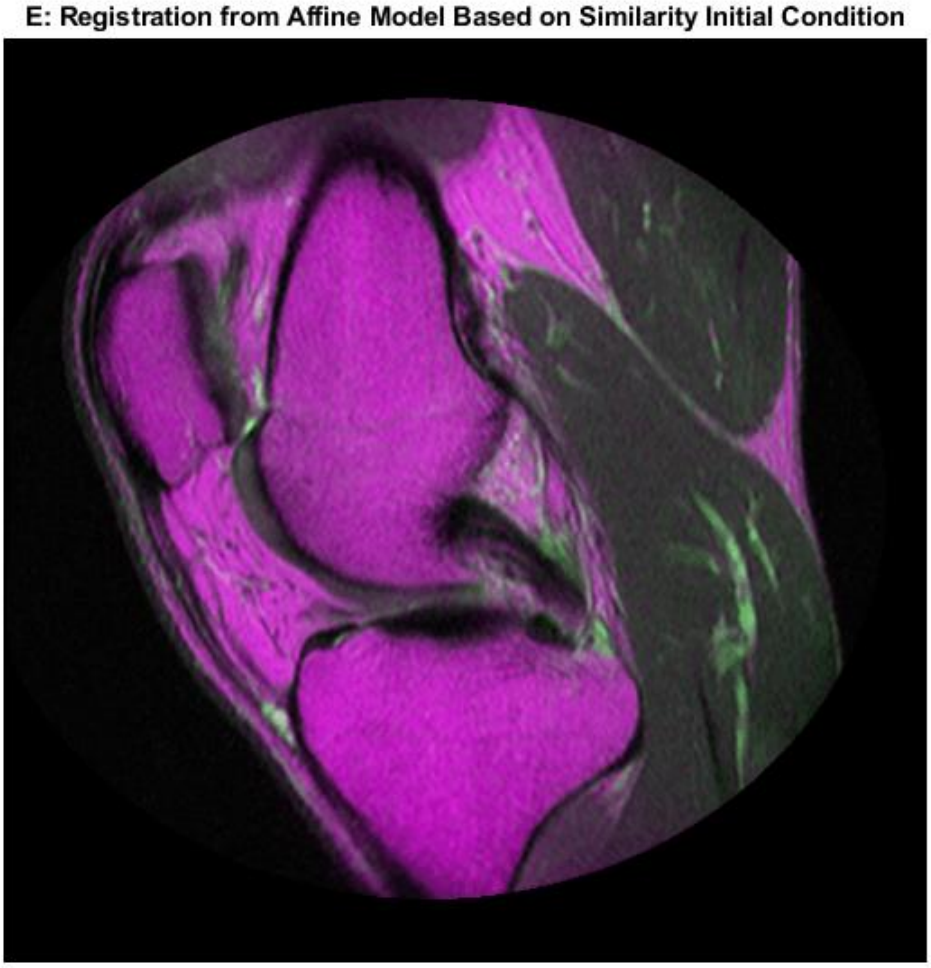
CODE:

Editor - C:\Users\Ahtesham Sarwar\Desktop\DIP ASSIGNMENT\ImageRegistrationUsingControlPoints.m

ImageRegistrationUsingControlPoints.m

```
fixed = dicomread('knee1.dcm');
moving = dicomread('knee2.dcm');
imshowpair(moving,fixed,'montage')
title('Unregistered')
imshowpair(moving,fixed)
title('Unregistered')
[optimizer,metric] = imregconfig('multimodal');
movingRegisteredDefault = imregister(moving,fixed,'affine',optimizer,metric);
imshowpair(movingRegisteredDefault,fixed)
title('A: Default Registration')
disp(optimizer)
disp(metric)
optimizer.InitialRadius = optimizer.InitialRadius/3.5;
movingRegisteredAdjustedInitialRadius = imregister(moving,fixed,'affine',optimizer,metric);
imshowpair(movingRegisteredAdjustedInitialRadius,fixed)
title('B: Adjusted InitialRadius')
optimizer.MaximumIterations = 300;
movingRegisteredAdjustedInitialRadius300 = imregister(moving,fixed,'affine',optimizer,metric);
imshowpair(movingRegisteredAdjustedInitialRadius300,fixed)
title('C: Adjusted InitialRadius, MaximumIterations = 300')
tformSimilarity = imregtform(moving,fixed,'similarity',optimizer,metric);
Rfixed = imref2d(size(fixed));
movingRegisteredRigid = imwarp(moving,tformSimilarity,'OutputView',Rfixed);
imshowpair(movingRegisteredRigid, fixed)
title('D: Registration Based on Similarity Transformation Model')
```

OUTPUT:


E: Registration from Affine Model Based on Similarity Initial Condition