
Subject: 3D Registration

Posted by [Bita](#) on Tue, 09 Oct 2007 15:48:19 GMT

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Hello All !

I am looking for examples of the implementation of 3D registration by Roger Woods.

I would like to implement it with Ratio Image Uniformity (RIU Cost Function) of woods in IDL.

So far I have tried it with other methods but it didn't work out. Could you please check where the fault lies and eventually suggest a solution?

Thanks

Bita

```
=====
FUNCTION Cost_Ratio, RefArray, xformArray

nElements = N_ELEMENTS(RefArray)

aRatio1 = Float(RefArray) / Float(xformArray > 0 )
aRatio2 = Float(xformArray) / Float(RefArray > 0 )

aRatio1Q = aRatio1^2
aRatio2Q = aRatio2^2

nMean1 = MEAN(aRatio1, /Double)
nMean2 = MEAN(aRatio2, /Double)

nMean1Q = (nMean1^2)
nMean2Q = (nMean2^2)

RIU1 = Double(Total( aRatio1Q ) - (nElements * nMean1Q) /
nMean1)
RIU2 = Double(Total( aRatio2Q ) - (nElements * nMean2Q) /
nMean2)

RIU = (RIU1 + RIU2) / 2

return, RIU

END

=====
```

```
FUNCTION Cost_Ratio, RefArray, xformArray
```

```
nElements = N_ELEMENTS(RefArray)
```

```
  aRatio = Float( (RefArray) / Float(xformArray) )
```

```
;? aRatio = Float( (xformArray) / Float(RefArray) )
```

```
nMean    = Total(aRatio) / nElements
```

```
RIU = DOUBLE(1/nMean) *(SQRT (Total((aRatio - nMean)^2)) /  
(nElements-1) )
```

```
return, RIU
```

```
END
```

```
;=====
```

```
FUNCTION Cost_Ratio, RefArray, xformArray
```

```
nElements = N_ELEMENTS(RefArray)
```

```
  aRatio = Float( (RefArray) / Float(xformArray) )
```

```
;? aRatio = Float( (xformArray) / Float(RefArray) )
```

```
nMean    = Total(aRatio)/nElements
```

```
RIU = DOUBLE(STDDEV(aRatio)/MEAN(aRatio))
```

```
return, RIU
```

```
END
```

```
;=====
```