

IG3DA Personal Project

Characterising Shapes using Conformal Factors

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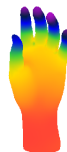
Implementation : Conformal Factor

- Starting point: IGR202 project
- Fill vector and matrix iterating on vertices
- Eigen solver for sparse matrices

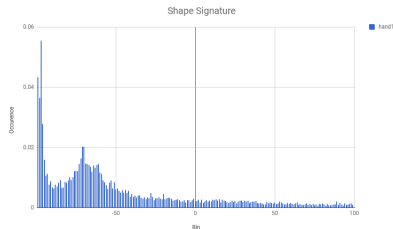


Implementation : Signature

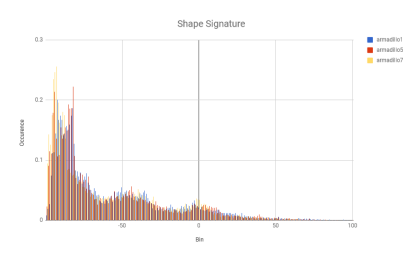
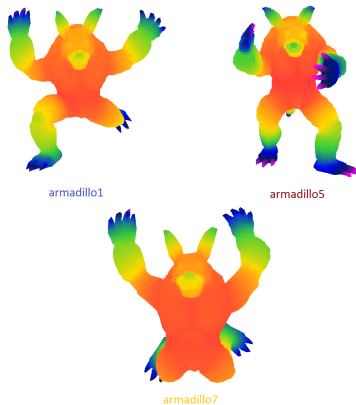
- Supersampling
 - Random triangle by area
 - Random point in triangle
- Normalisation
- Bins



hand1



Results : Signature of similar meshes 1/2



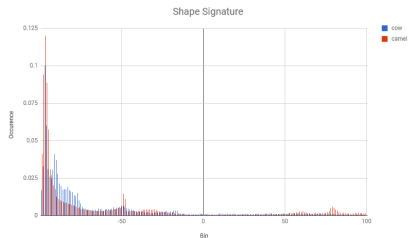
Results : Signature of similar meshes 2/2



COW



camel



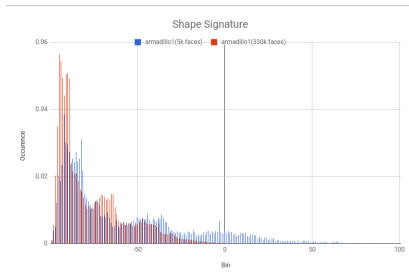
Results : Robustness with tessellation 1/2



armadillo1 (5k faces)



armadillo1 (330k faces)



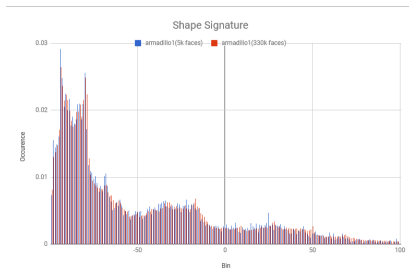
Results : Robustness with tessellation 2/2



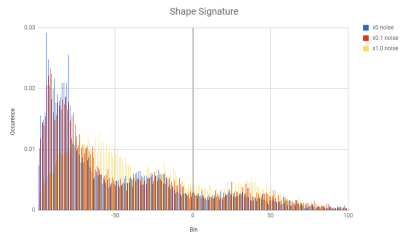
armadillo1 (5k faces)



armadillo1 (330k faces)



Results : Robustness with noise



Results : Execution time



neptune (4M faces)

```
Computation begins.  
Initialization ended: 3.59324 seconds  
Gauss curv ended: 5.5468 seconds  
Target curv ended: 5.88394 seconds  
Lap matrix fill ended: 9.47248 seconds  
ConfFactor equation solving ended: 65.5352 seconds  
ConfFact calculation ended: 65.5426 seconds  
Point generation ended: 71.1459 seconds  
Bin filling ended: 71.1512 seconds  
Signature generation ended: 71.1515 seconds
```

Demo

