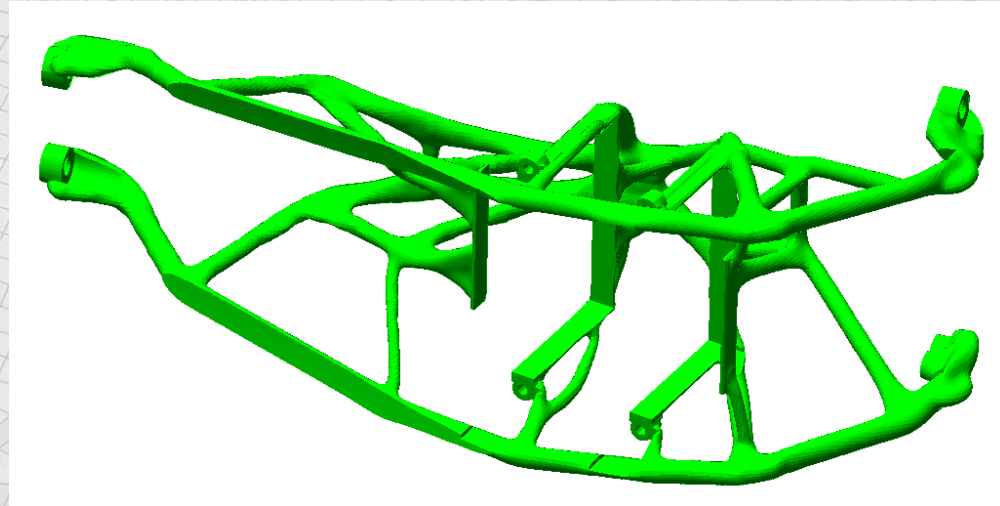
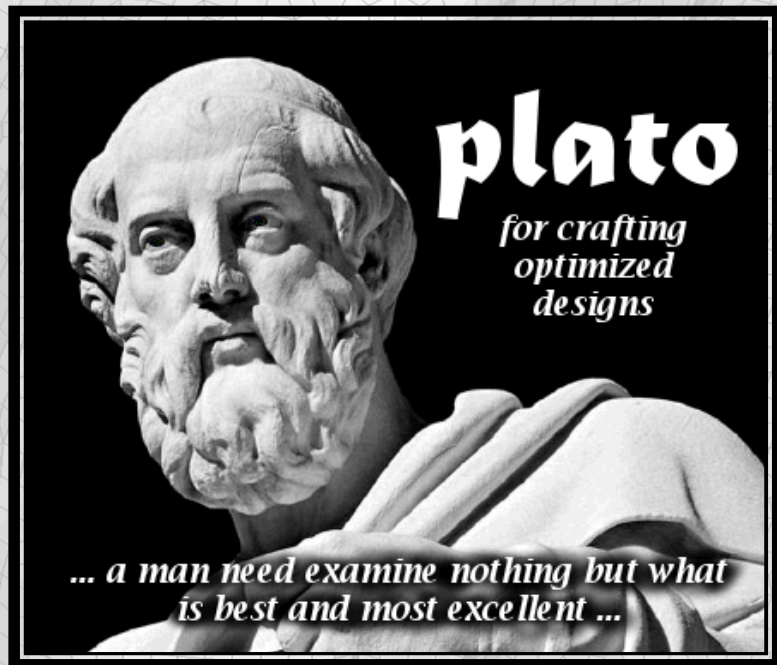


Converting Facets To B-Reps

Paul R. Stallings, Ph.D.

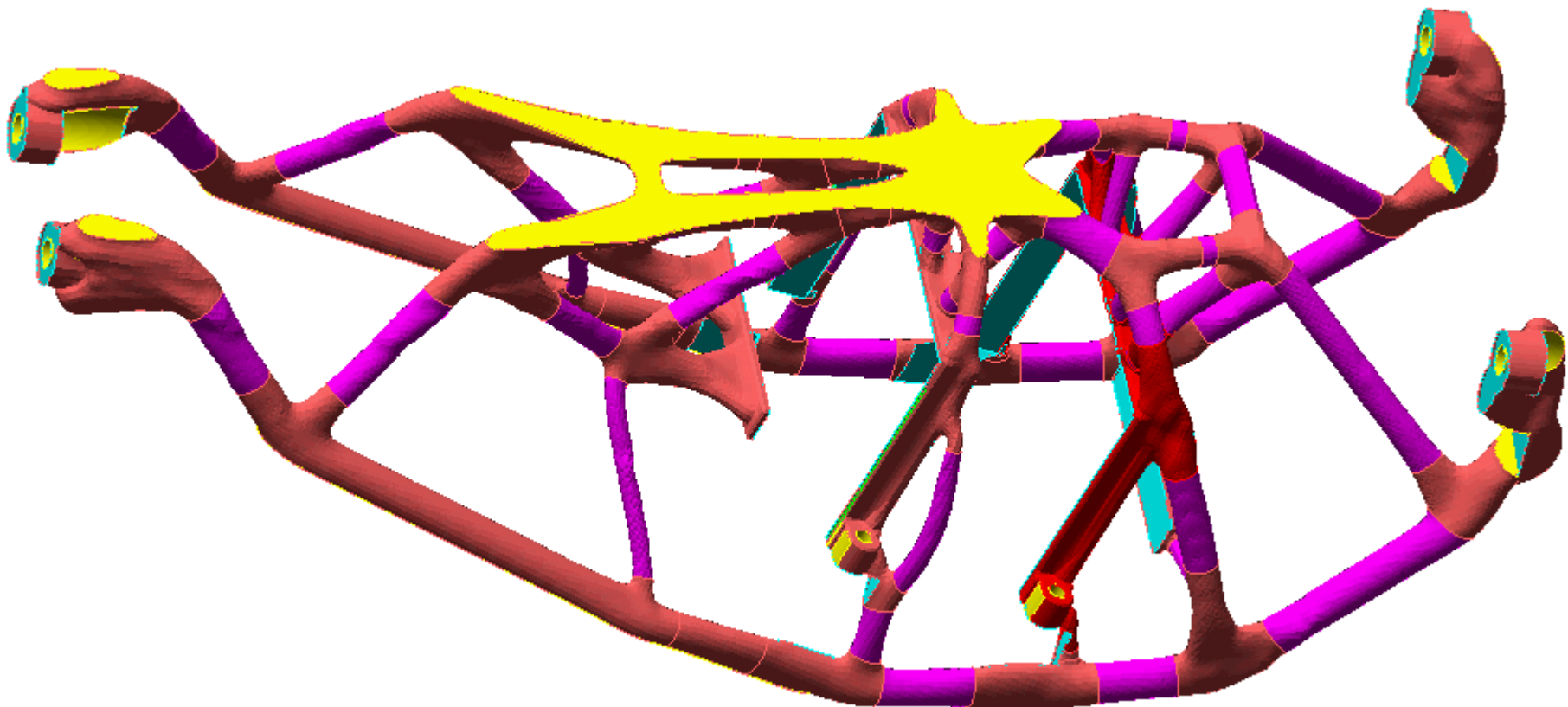


174,684 Triangles
87,264 Vertices
262,026 Edges

Euler Characteristic $\chi = B+T+V-E$
Genus = $(2 - \chi) / 2$

$\chi = -78$ Hence Genus = 40

The Goal is to split the part up into coverable parts.
Plane, Cylinders, Tubes and Joint.

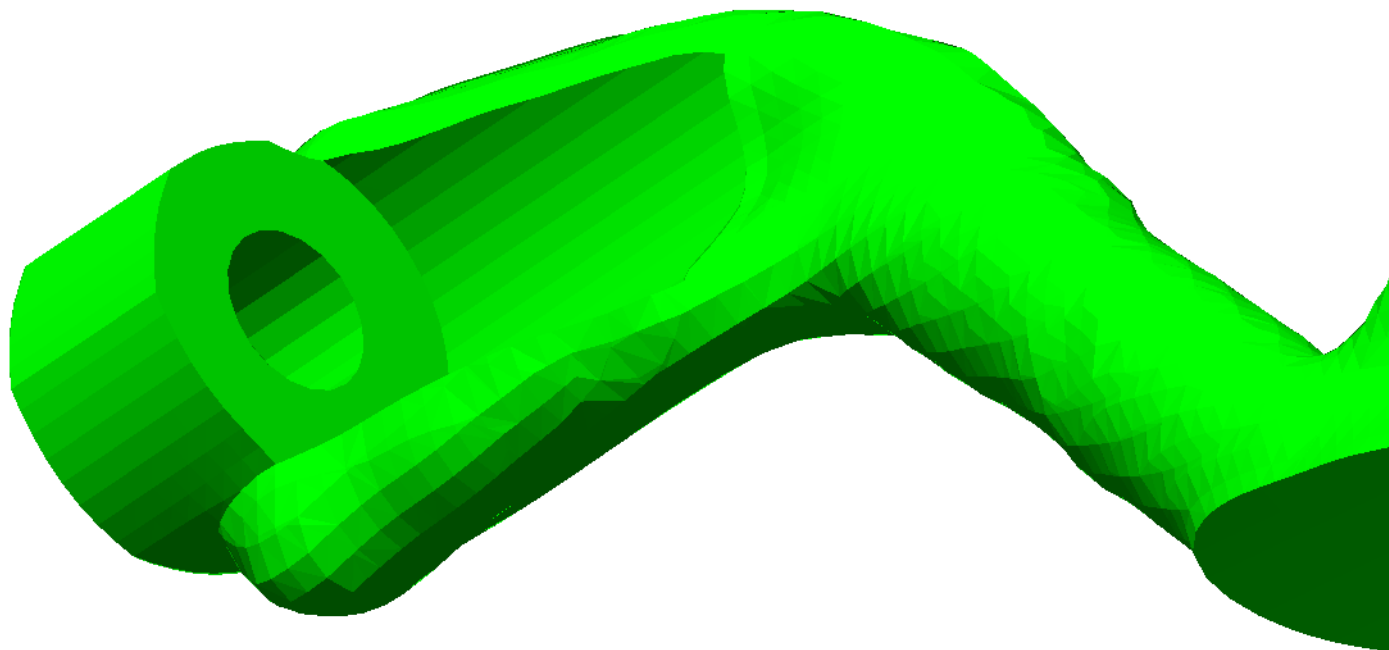


Three types of triangles / vertices.

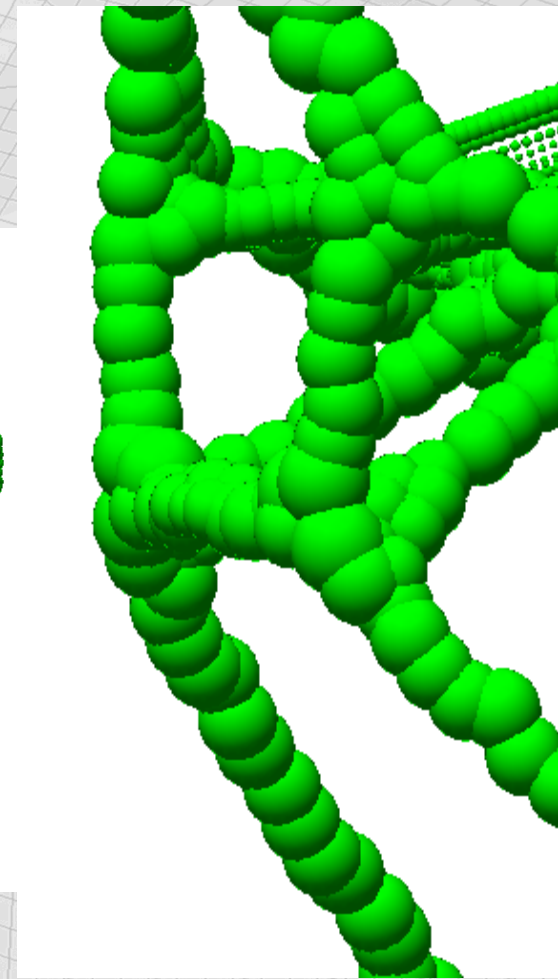
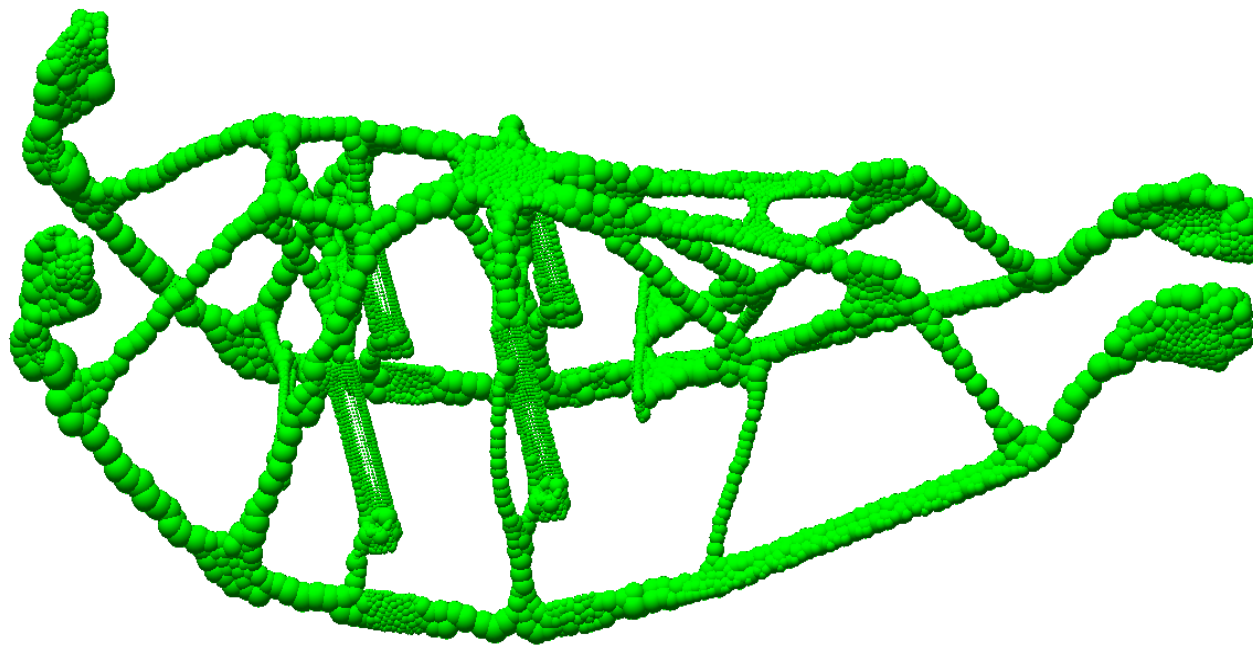
Smooth vertices

Ruled Triangles

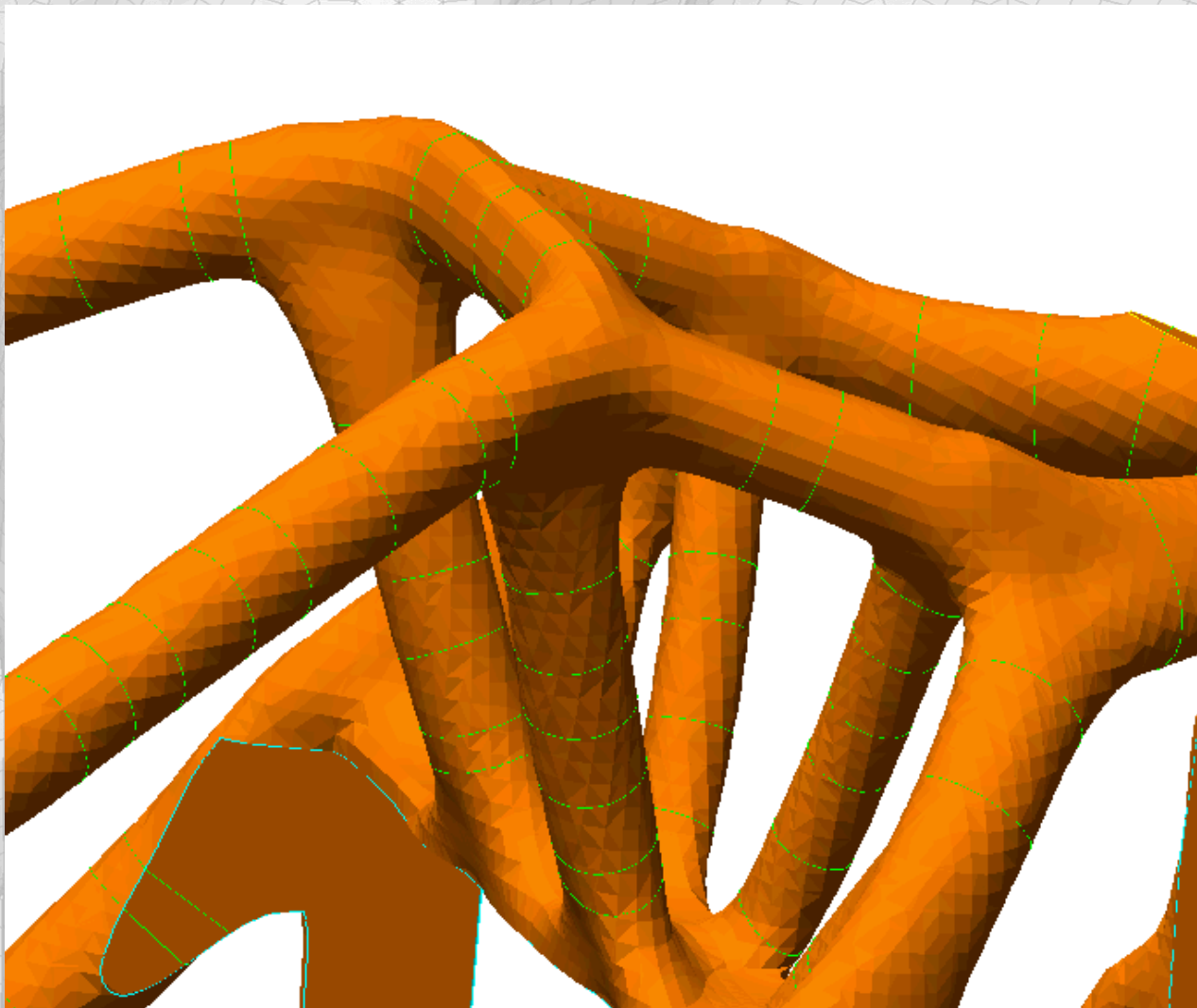
Rough Patches



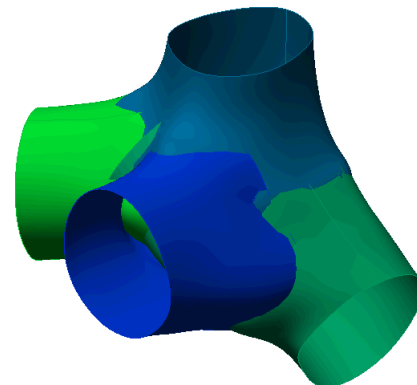
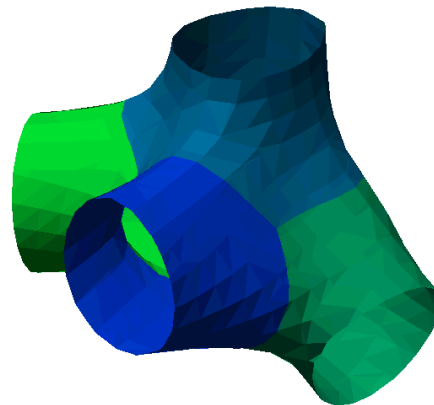
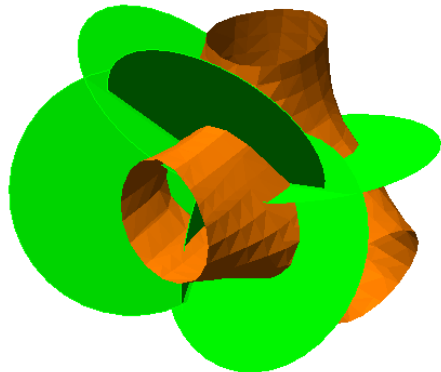
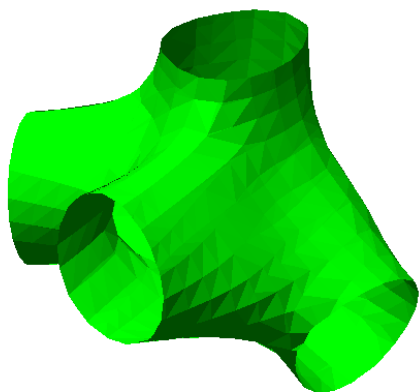
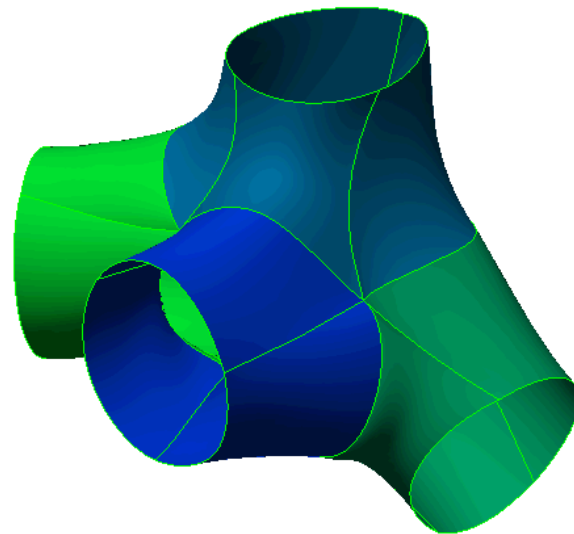
Poor mans medial axis from a reduced set of 5710 ray fire generated spheres.



Tube Walking



Simple Joint Covering



Compound Joint Covering

