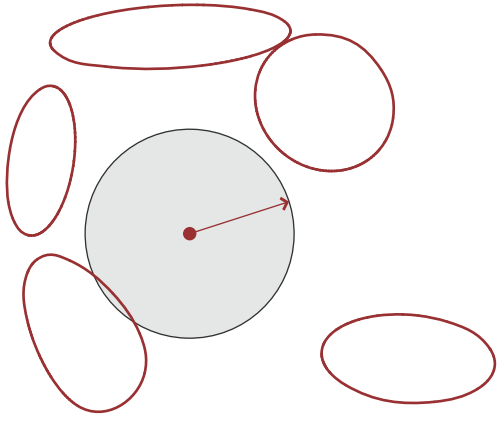
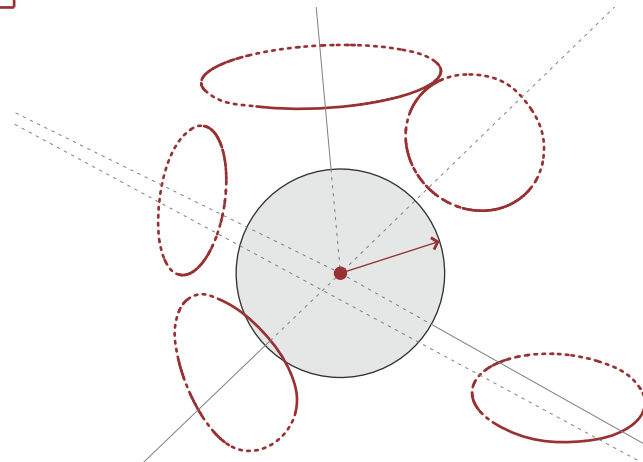


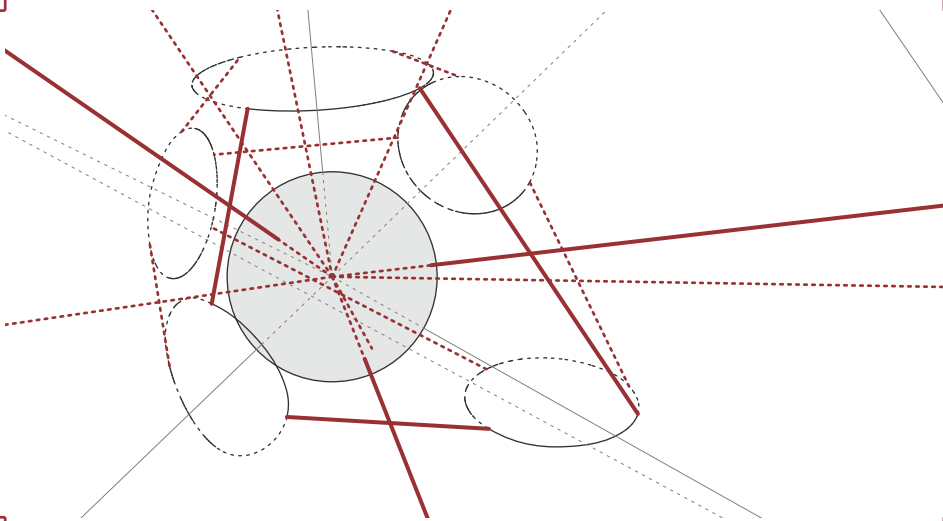
# P R O C E S S S



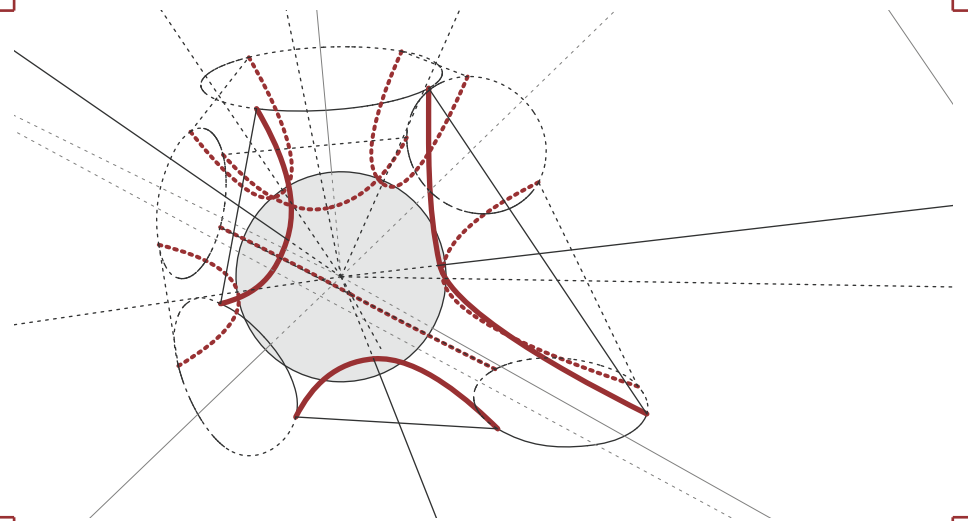
**Initial Conditions :** This script will connect any number of elements with any kind of cross-sections in any orientation. All that needs to be specified is the cross-sections, the center point, and a minimum interior radius.



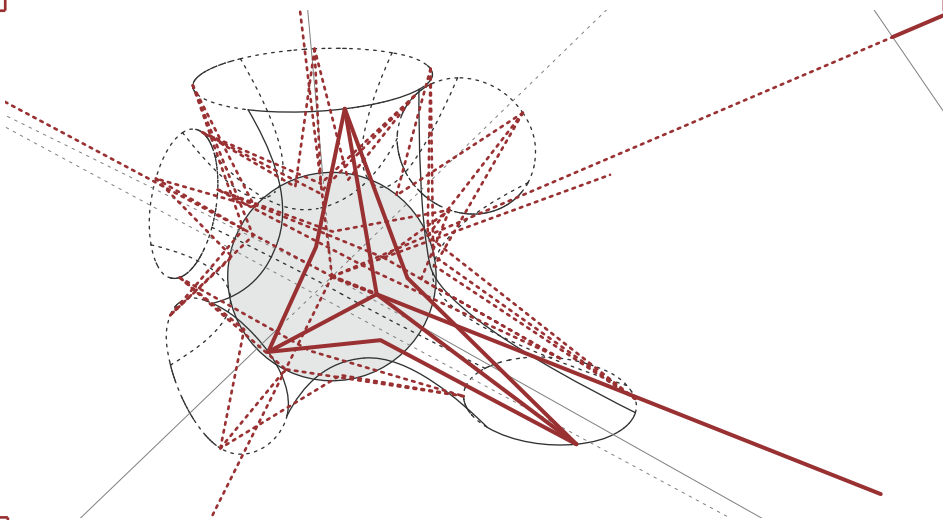
**Setup Base Geometry :** A sphere is created around the center point to the specified radius. Planes are drawn between the center lines of each connection hole. These are then checked for collision and the appropriate ones are deleted. This basic geometry will serve as the basis for the rest of the script.



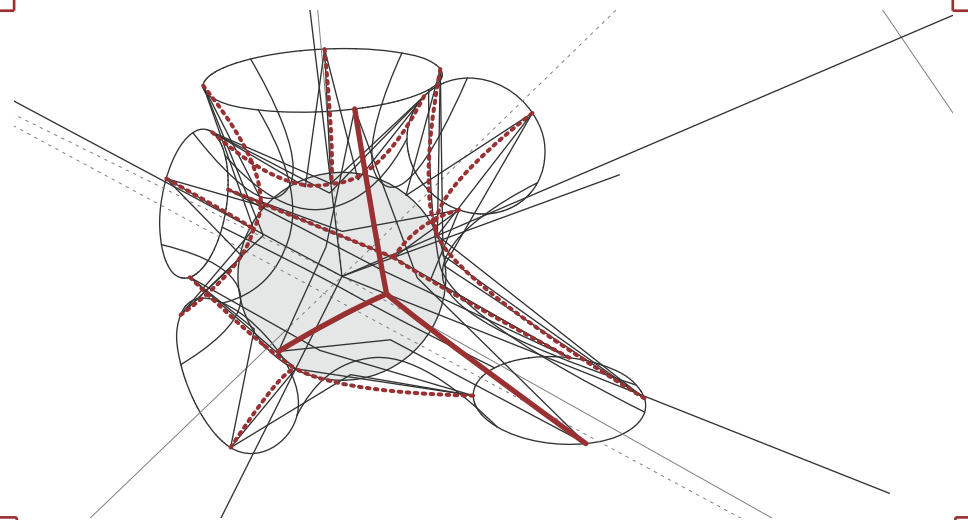
**Define Construction Lines for Short Curves :** Using points found by taking the intersection of the hole curves and the test planes, lines are drawn connecting all nearest neighbor holes. Another set of lines is then projected down to the center point from their midpoints. A point is defined where those lines intersect with the sphere.



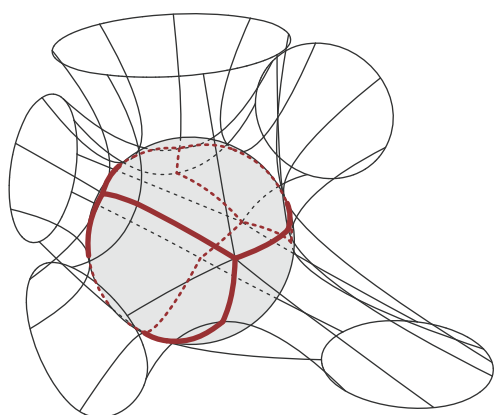
**Create Direct Curves :** Tangents are calculated along the intersection of the test planes and sphere. By combining these with the plane/hole collision points and the points on the sphere, curves are drawn between all nearest neighbors.



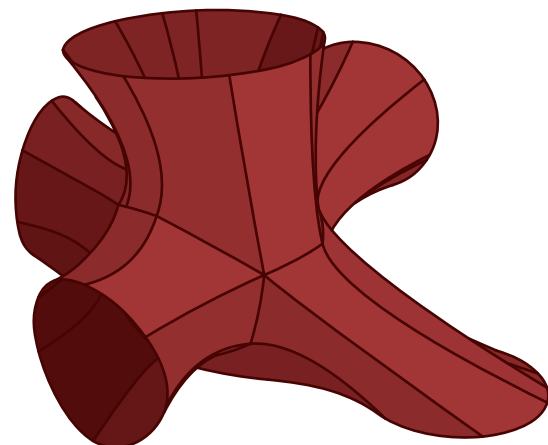
**Define Construction Lines for Averaged Curves :** Before a surface can be created, more connection lines need to be found. The connection holes are divided by the direct curves and their midpoints are checked for non-colliding connections. All valid connections are then averaged and construction geometry is drawn.



**Create Average Curves :** Again, tangents must be calculated in the appropriate directions at the points defined on the sphere in the last step. Curves can then be drawn connecting multiple connection holes.



**Create Cross Curves on Sphere :** The endpoints of all the previously created curves are gathered and organized. Curves are then drawn between them which lie on the center sphere.



**Create Final Surface :** All the curves are organized into adjacent groups of four (one segment of a connection hole curve, one direct connection curve, one average curve, and one cross curve) and surfaces are created between them. The connector is done.