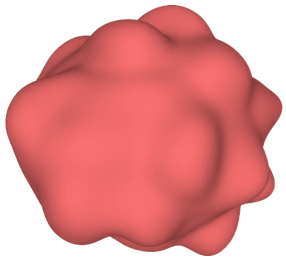
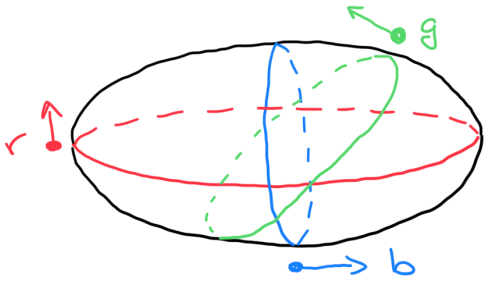
Shortest Isocline Curve of a 3D Body

Consider a 3D object in whatever representation you find to best suit the needs (mesh, implicit function, b-rep, …).



Design an algorithm / approach that finds a direction **a** with a shortest 0° isocline curve.

For example, consider a rotational ellipsoid below. For candidate directions **b** (blue), **g** (green) and **r** (red), the corresponding 0° isocline curves are drawn on the surface of the body.



The blue isocline curve has a shorter circumference than the other two, so it should be selected over the candidates. The goal is to find the direction **a** that results in the shortest isocline curve.