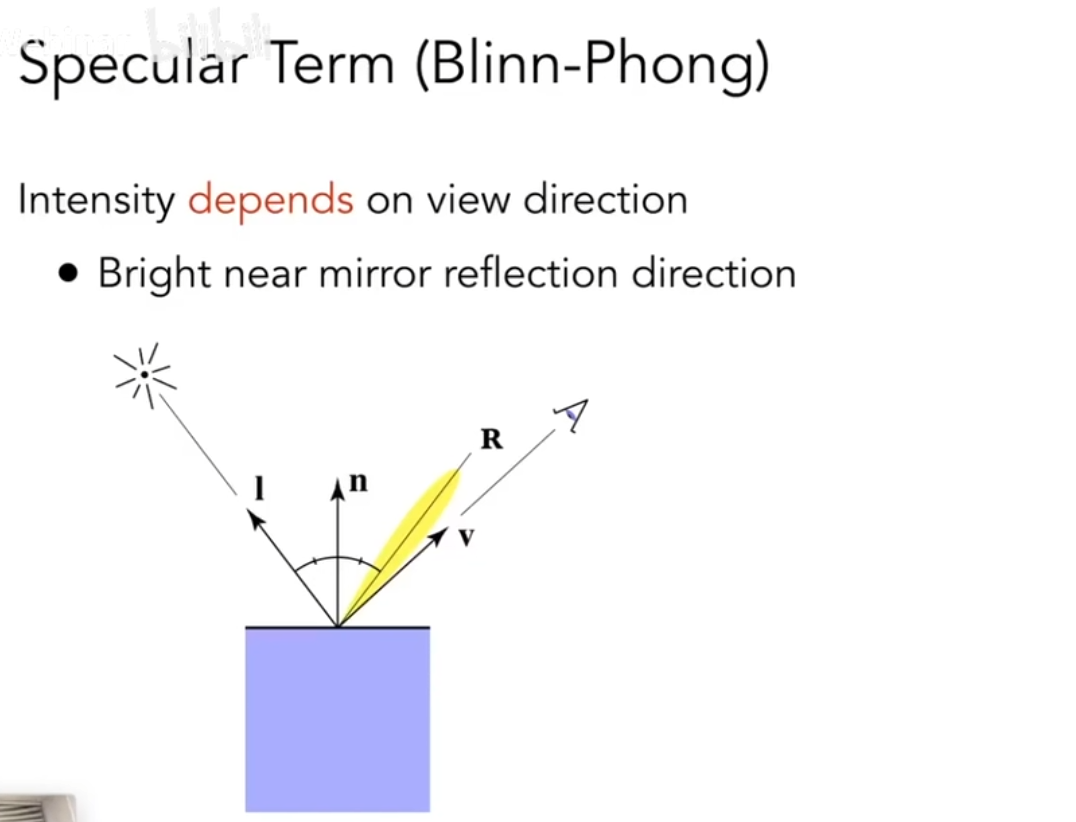
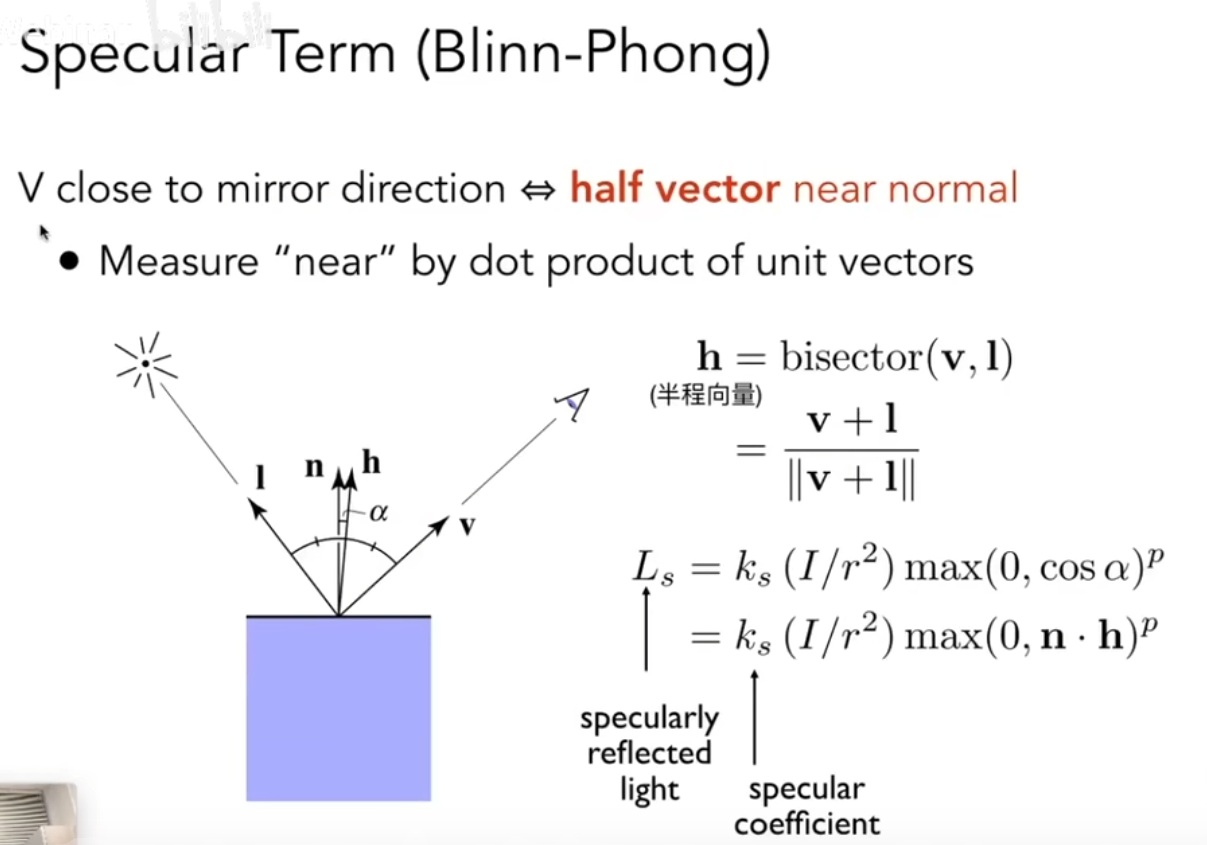


高光相

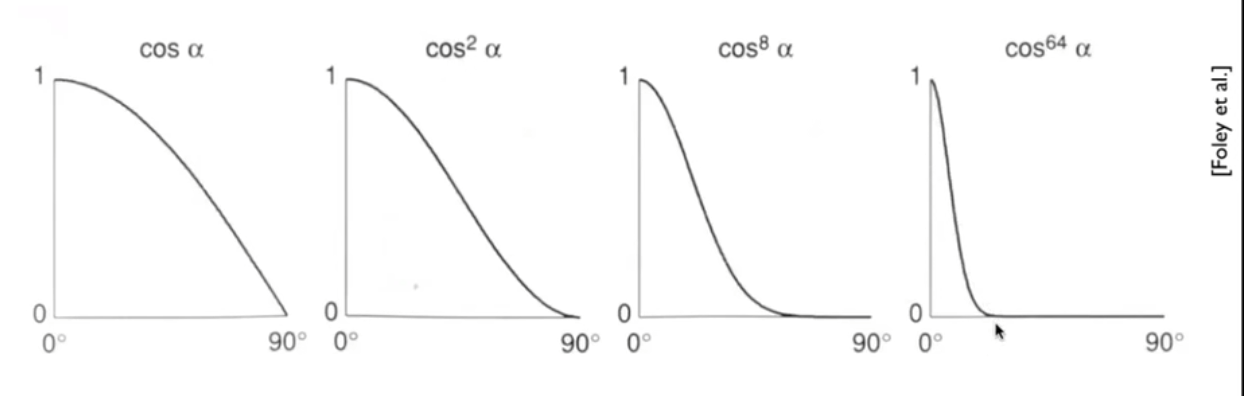




考虑半程向量与法线的夹角

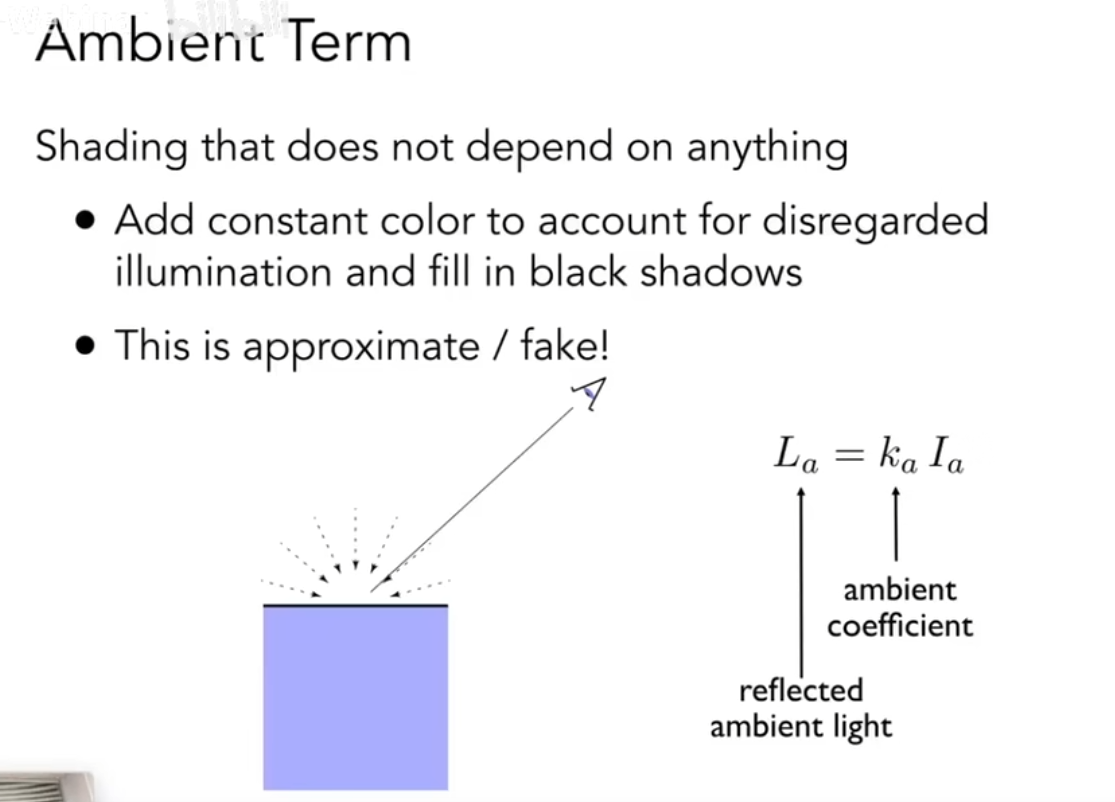
因为更好计算

P次方是为了避免高光区域过大，控制高光大小

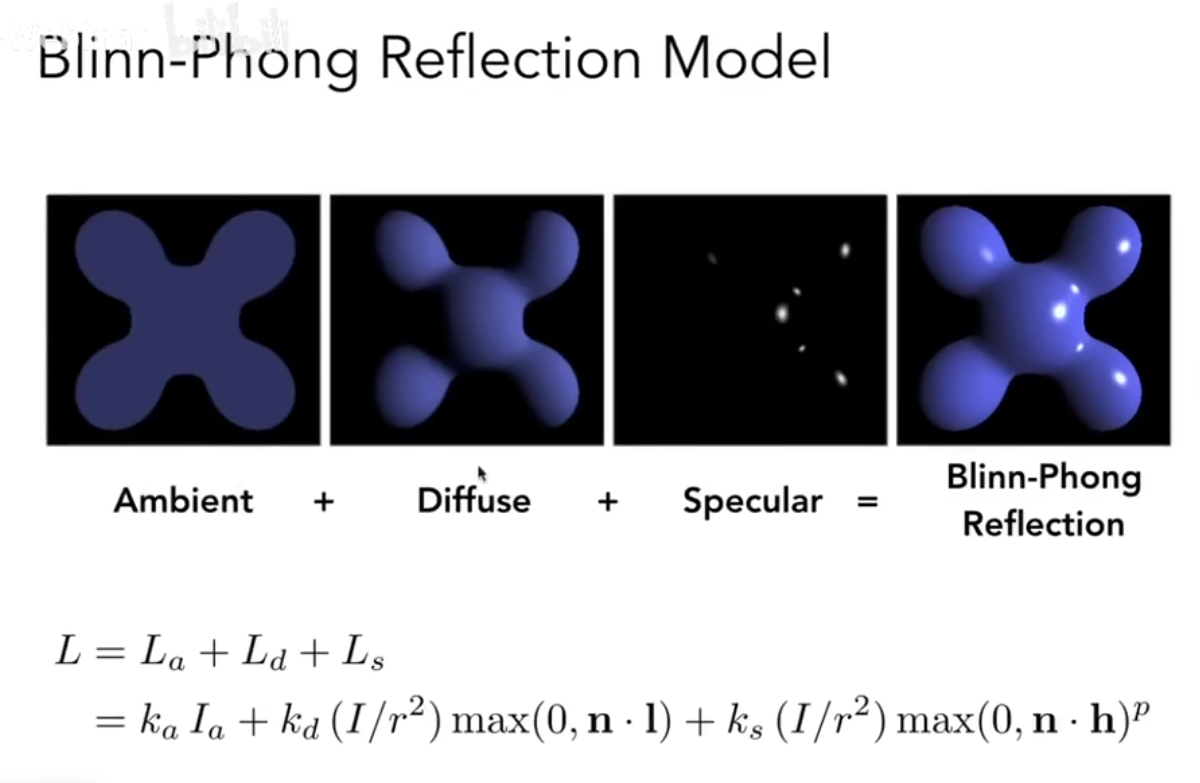


通常是100到200

环境光照

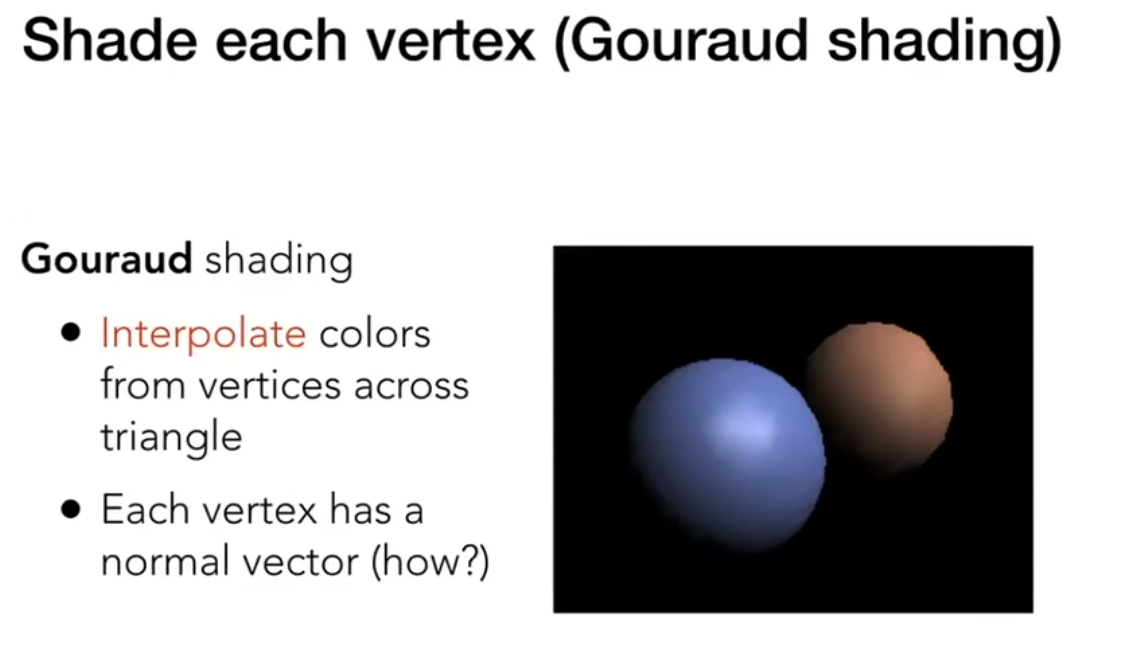


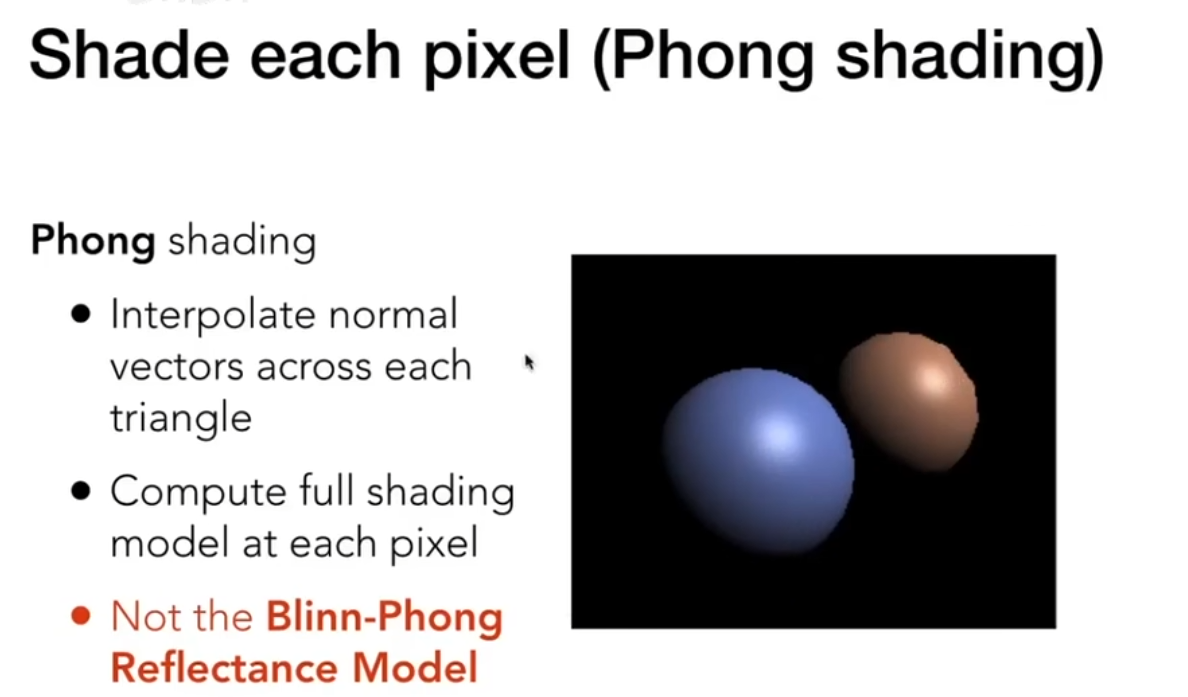
假设环境光是定值



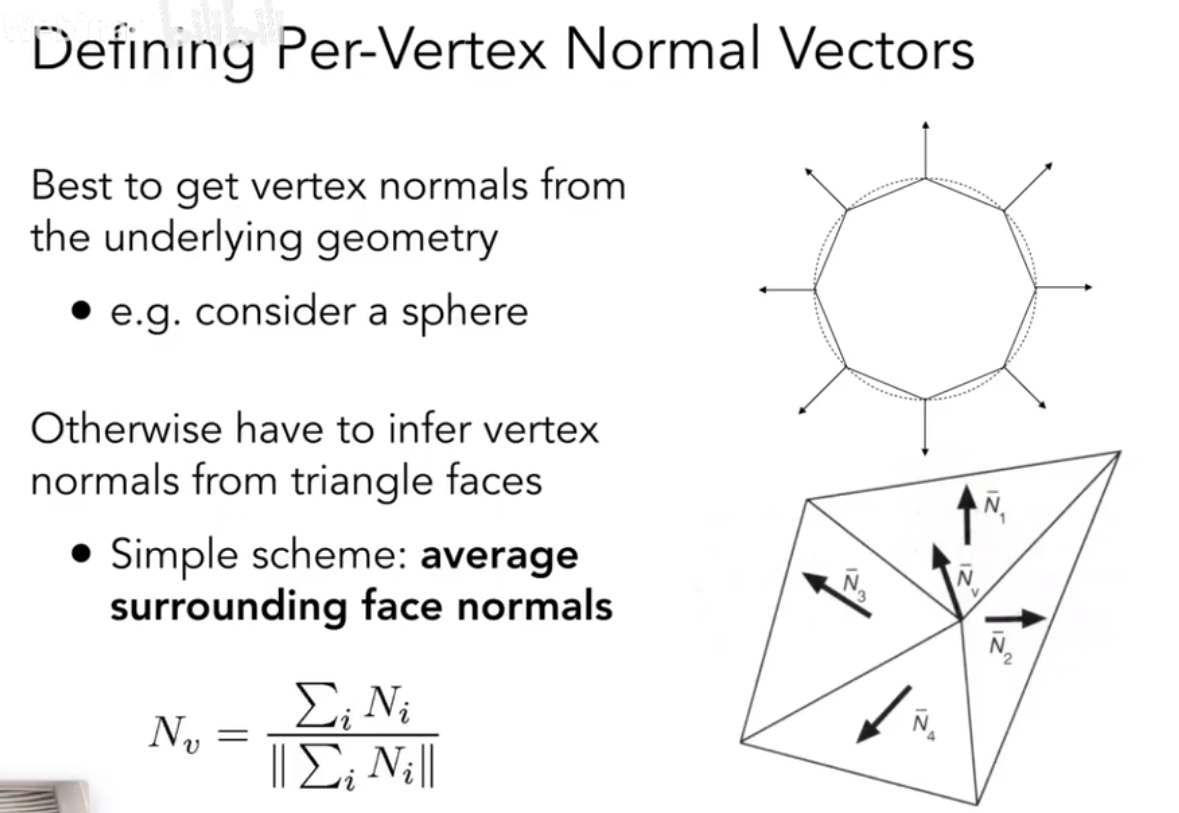
各项相加



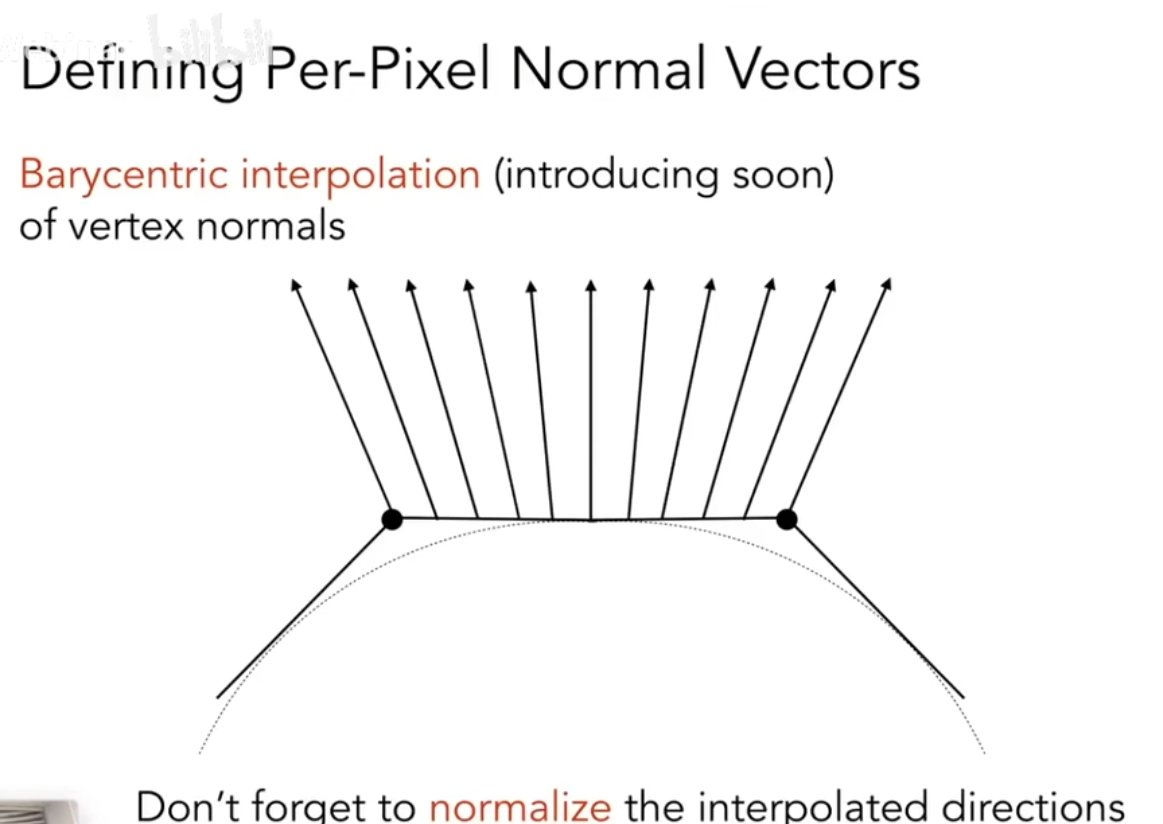




三种着色频率

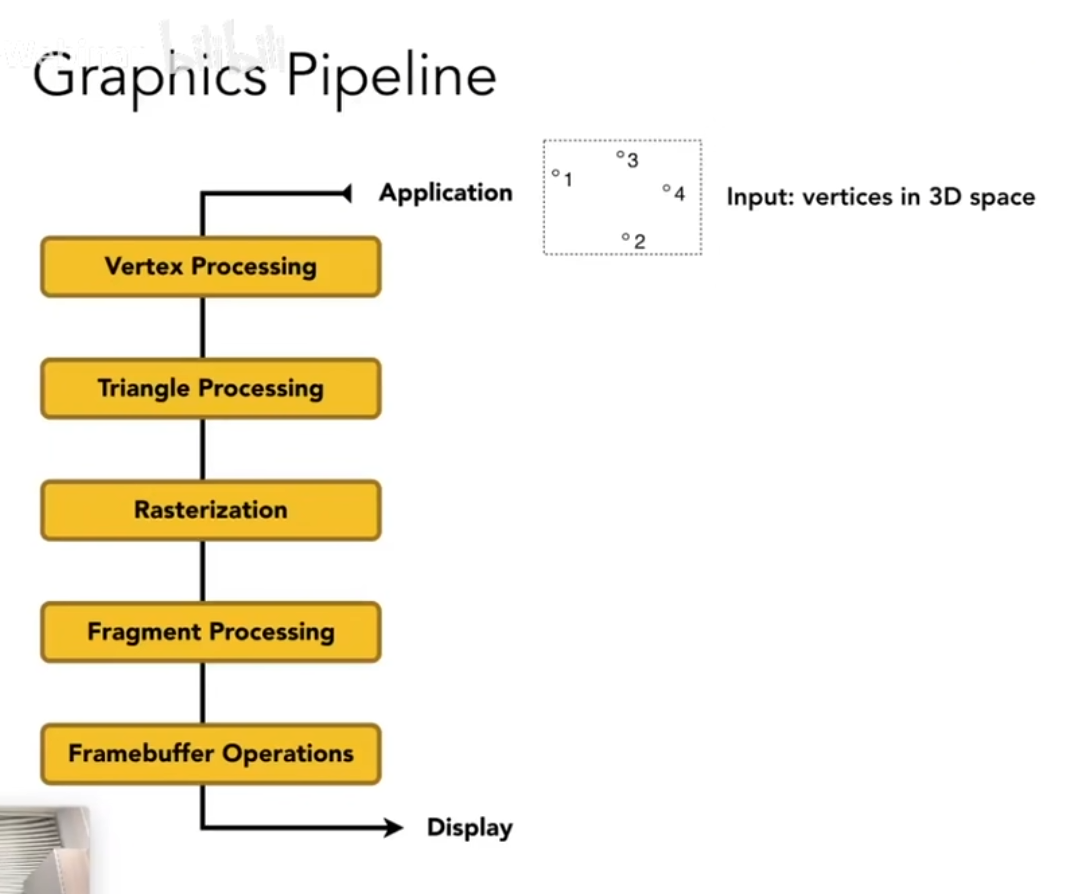


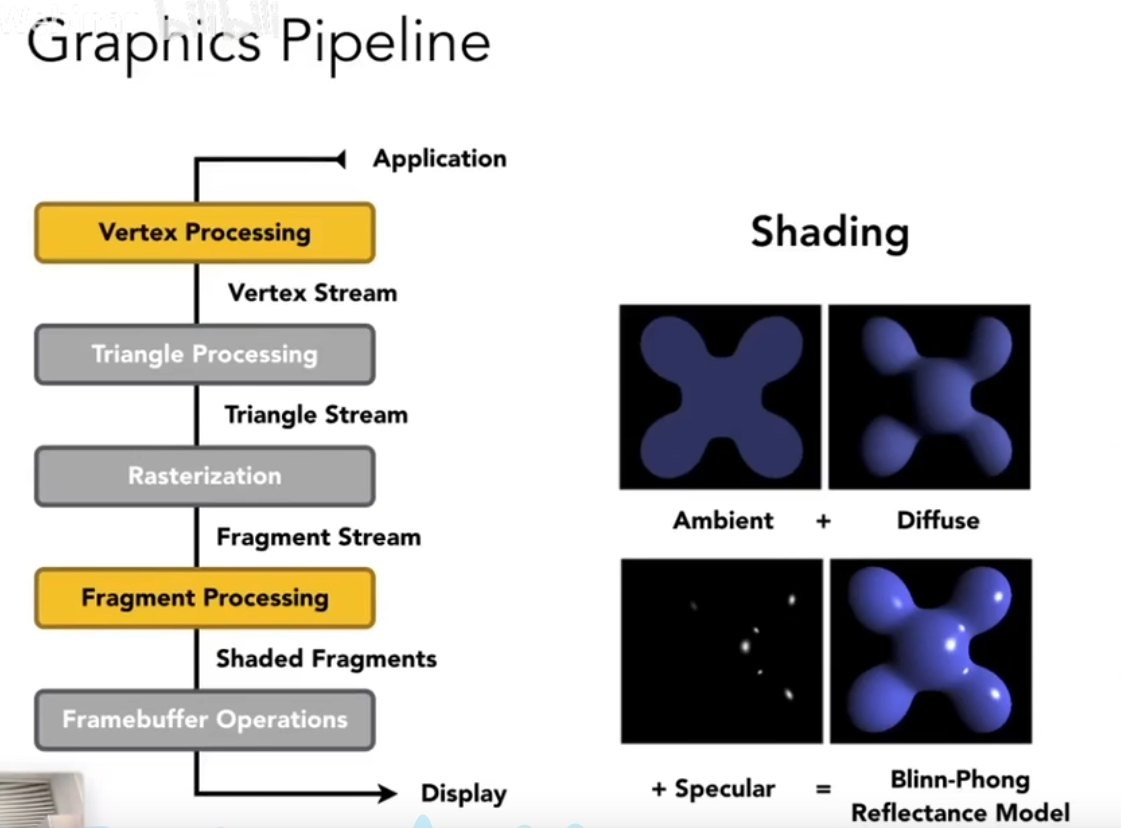
求逐顶点的法线



逐像素法线需要重心坐标

实时渲染管线

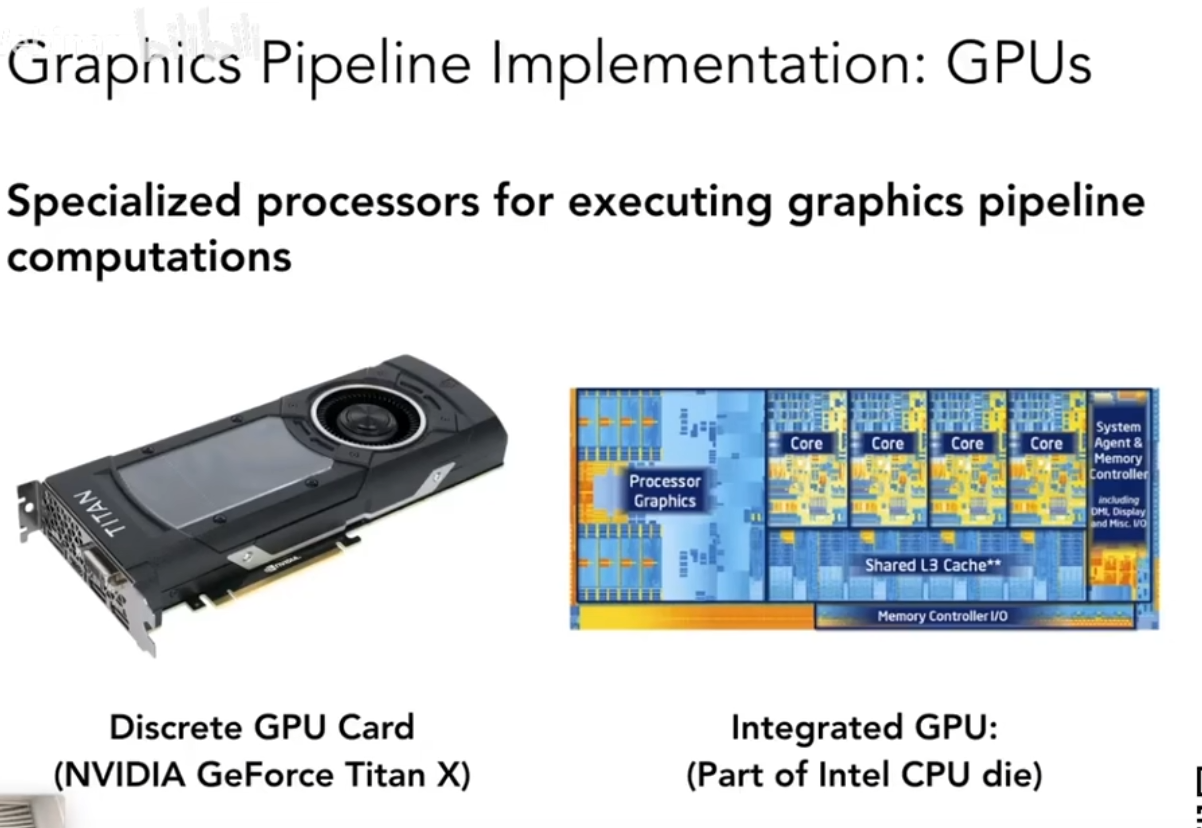




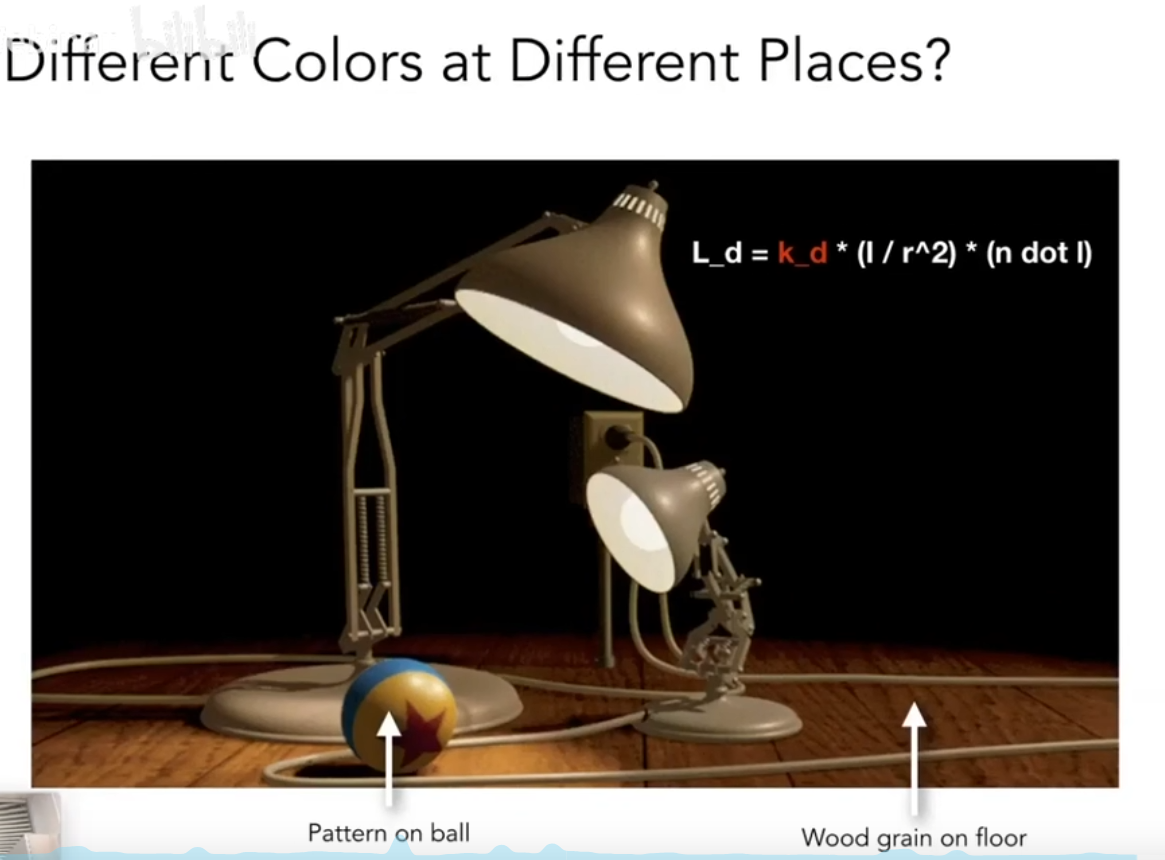
vertexShader和fragmentShader是可编程的

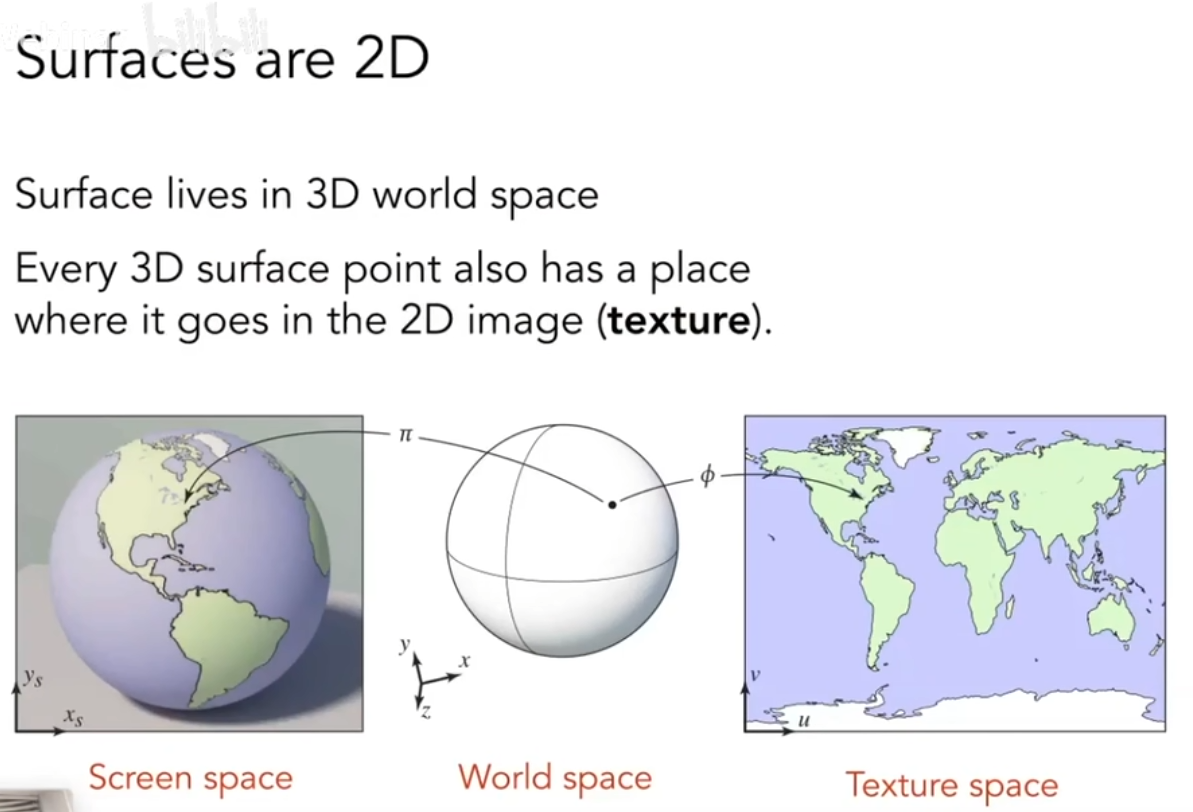


OpenGL的fragmentShader例子

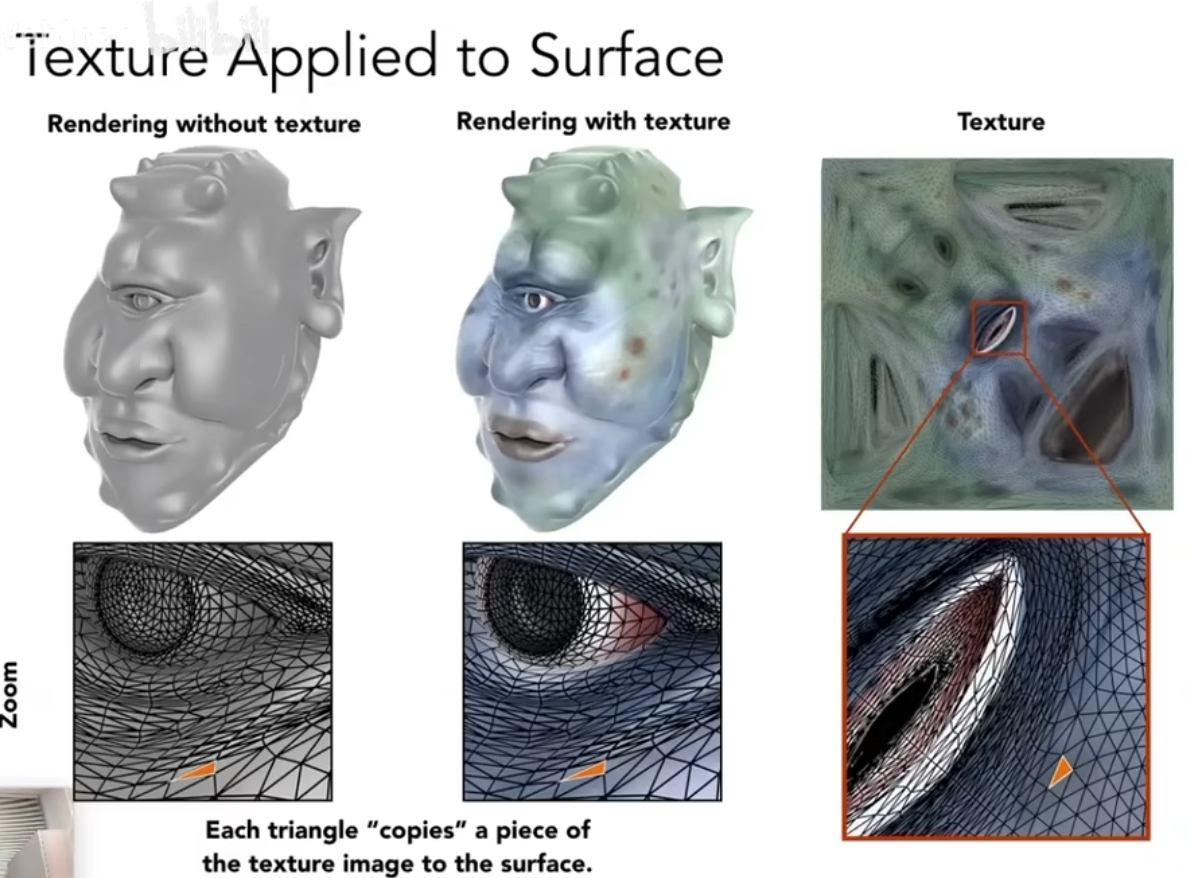


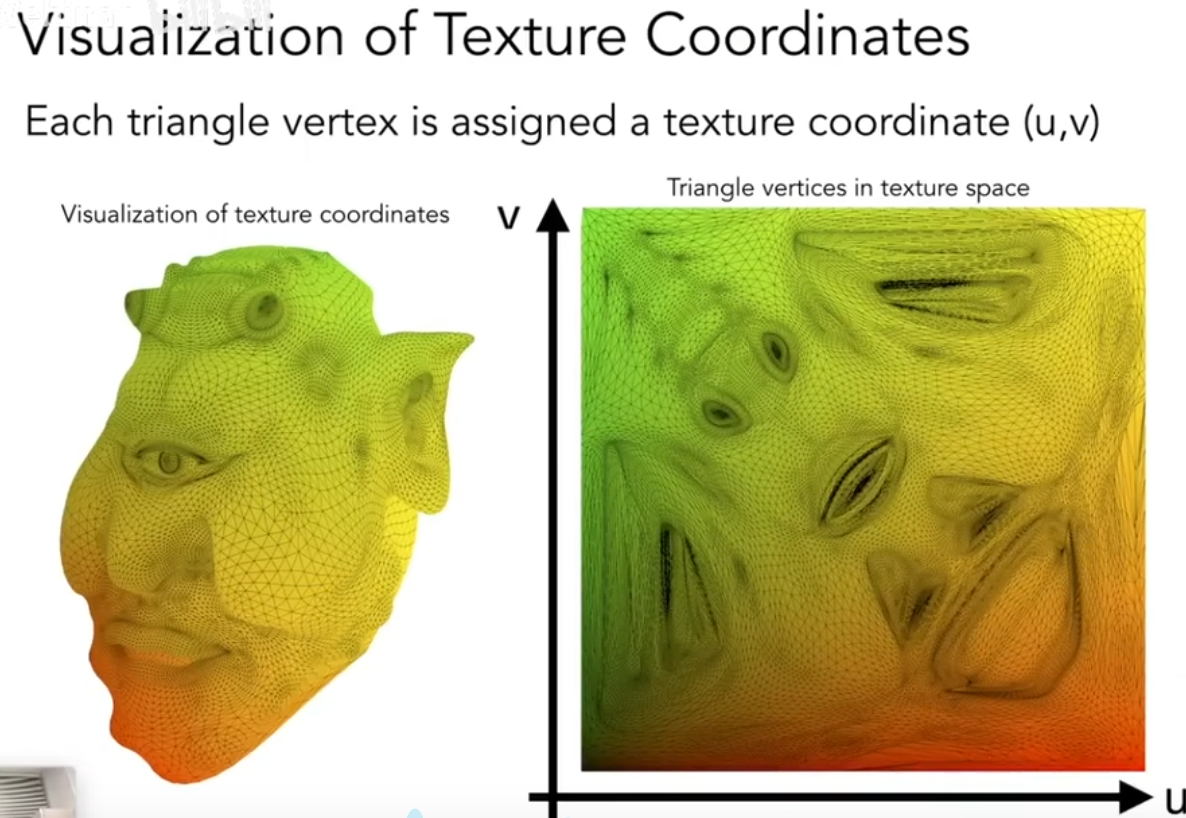
纹理





实际上是一张图





u和v都在0到1之间



瓦片