

3D Occupancy Grid with ibeo Lux Laser Scanner -Shilpan

1) What are the computational advantages of using logodds when generating our occupancy grid?

The computational advantage of using logodds is that it is numerically stable. In multiplicative combination of probabilities, it does not run into issues with truncation. Furthermore, the update rule uses addition only due to the property of the log, where $\log(a*b) = \log(a) + \log(b)$. Hence, the log property provides easy calculations.

2) Is the angle phi in our Spherical to Cartesian calculation the same as the polar angle in standard Spherical coordinates? Why?

No, the angle phi in Spherical to Cartesian calculation is not the same as polar angle in standard Spherical coordinate. This is because the angle phi is the angle of incidence from current layer to ground plane. However, the polar angle in standard spherical coordinates is angle between zenith direction and the current layer. Hence, they are not the same.