Collision Detection

$$p_i = E\{C_i\} = \sum_{k=1}^{m} \frac{\delta(C_{i,k})}{m}$$

$$t = \begin{bmatrix} x_i \\ y_i \\ z_i \\ r_i \\ r \end{bmatrix}$$

$$\begin{bmatrix} x_i \\ y_i \\ z_i \end{bmatrix} \sim N(\mu_i, V_i)$$

$$r_i \sim lognormal(\mu_{r,i}, \sigma_{r,i})$$

$$r \sim lognormal(\mu_{r,o}, \sigma_{r,o})$$