

Compute inertia matrix for point mass

Compute the inertia matrix of a point mass from its mass  $m$  and position  $[x, y, z]$  according to

$$I_{pm} = m \begin{pmatrix} y^2 + z^2 & -xy & -xz \\ -xy & x^2 + z^2 & -yz \\ -xz & -yz & x^2 + y^2 \end{pmatrix}$$

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function I = point_mass_inertia_matrix(position, mass)
    x = position(1);
    y = position(2);
    z = position(3);
    I = mass * [
        y^2 + z^2,    -x*y,    -x*z;
        -x*y, x^2 + z^2,    -y*z;
        -x*z,    -y*z, x^2 + y^2;
    ];
end
```