Constraint Force

$$F_n \hat{\mathbf{e}}_\theta$$

Spring Force

$$\vec{\boldsymbol{F}}_r, \text{ Impulsive}$$

$$-2mg\hat{\mathbf{e}}_Y, \text{ Not Impulsive}$$

$$\vec{\boldsymbol{F}}, \text{ Impulsive}$$

$$-mg\hat{\mathbf{J}}$$

$$\vec{\boldsymbol{F}} = F_x\hat{\mathbf{I}} + F_Y\hat{\mathbf{J}}$$

$$G = (x_G, y_G)$$

$$P = (x_P, y_P)$$

$$\hat{e}_3$$

$$R$$

$$\vec{\boldsymbol{\tau}}$$

$$\theta$$

$$\theta_0$$

$$I_0$$