Route charge

$$E_c(\Sigma/R_0) = \frac{1}{2} I \dot{\theta}^2 + \frac{1}{2} m (l\dot{\theta})^2$$

$$= \frac{1}{2}(I + ml^2)\dot{\theta}^2 = \frac{1}{2} J_{eq} \cdot \dot{\theta}^2$$

$$P_{moteur} = C_m \dot{\theta}$$

$$P_{pes} = \vec{P} \cdot \vec{v}(B_1 \in 3/0) = -mg\vec{y_0} \cdot l\dot{\theta}\vec{y_1}$$

$$= -mgl\dot{\theta}\cos\theta$$

$$TEC \Rightarrow J_{eq}\dot{\theta}\ddot{\theta} = C_m\dot{\theta} - mgl\dot{\theta}\cos\theta$$

$$\Rightarrow C_m = J_{eq}\ddot{\theta} + mgl\cos\theta$$

Axe de Robot

$$E_c(\Sigma/3) = \frac{1}{2} m \dot{x}^2 + \frac{1}{2} J \dot{\theta}^2 = \frac{1}{2}(mr^2 + J)\dot{\theta}^2 = \frac{1}{2} J_{eq}\dot{\theta}^2$$

$$P_{ent} = C_m \cdot \dot{\theta} + F \cdot V = C_m\dot{\theta} + F r \dot{\theta}$$

$$P_{int} = -(1-\eta) C_m \dot{\theta} \qquad (P_{moteur} = \eta \cdot C_m \cdot \dot{\theta})$$

$$TEC \Rightarrow J_{eq}\dot{\theta}\ddot{\theta} = C_m\dot{\theta} + Fr\dot{\theta} - (1-\eta)C_m\dot{\theta}$$

$$J_{eq}\ddot{\theta} = \eta C_m + Fr$$

$$\ddot{\theta} = \frac{\eta C_m + Fr}{J_{eq}}$$