

High-level Controller

Robot
Controller

$$-\frac{\hat{p}_{ext}}{I_o + I_1 R_1^2}$$

Impact Estimation

Desired Torque

 τ_d

Desired Mode

 $k_d = 2$

Actuator Output

 $w_o \quad q_o$

DSDM Actuator Controller

Speed Controller

 $C(s)$

Nullspace Projection

if

 w_1

Kinematic

$$\begin{bmatrix} I_1 \\ -\frac{R_2}{R_1} I_2 \end{bmatrix}$$

 τ_1 τ_2

Open

M1 Torque

 τ_1

Brake State

M2 Torque

 τ_2

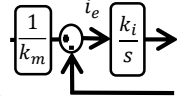
M1 velocity

 w_1

M2 velocity

 w_2

Hardware Controller

Current
controllersKinematic
/Filters