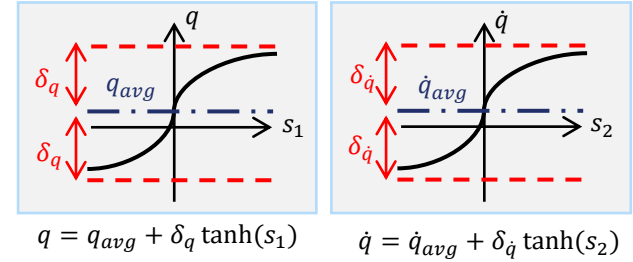
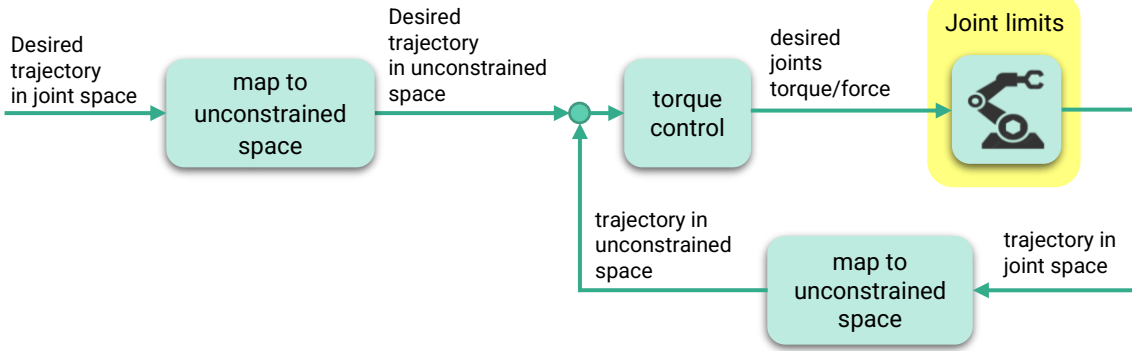


Torque Control with Joints Position and Velocity Limits Avoidance

Venus Pasandi and Daniele Pucci

Torque control of a robotic system



Constrained dynamics:

$$\ddot{q} = f(q, \dot{q}, u, \dots),$$

$$q_{avg} - \delta_q \leq q \leq q_{avg} + \delta_q$$

$$\dot{q}_{avg} - \delta_{\dot{q}} \leq \dot{q} \leq \dot{q}_{avg} + \delta_{\dot{q}}$$

Unconstrained dynamics:

$$\begin{bmatrix} \dot{s}_1 \\ \dot{s}_2 \end{bmatrix} = \begin{bmatrix} f_1(s_1, s_2, u, \dots) \\ f_2(s_1, s_2, u, \dots) \end{bmatrix}$$

