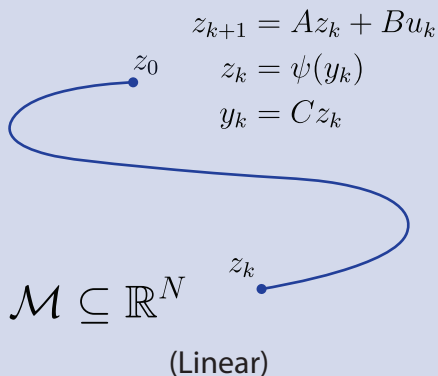


## Model



$$z_{k+1} = Az_k + Bu_k$$

$$z_k = \psi(y_k)$$

$$y_k = Cz_k$$

$$\mathcal{M} \subseteq \mathbb{R}^N$$

(Linear)

## MPC

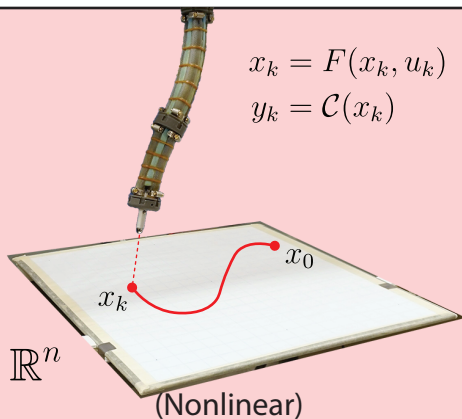
$$\min_{u_i} \sum_i z_i^T Q z_i + u_i^T R u_i + q^T z_i + r^T u_i$$

$$\text{s.t. } z_{i+1} = Az_i + Bu_i$$

$$Ez_i + Fu_i \leq b$$

$$z_0 = \psi(y_k)$$

(Quadratic Program)



$$x_k = F(x_k, u_k)$$

$$y_k = \mathcal{C}(x_k)$$

$$\mathbb{R}^n$$

(Nonlinear)

$$\min_{u_i} \sum_i x_i^T Q x_i + u_i^T R u_i + q^T x_i + r^T u_i$$

$$\text{s.t. } x_{i+1} = F(x_i, u_i)$$

$$Ex_i + Fu_i \leq b$$

$$x_0 = \mathcal{C}^{-1}(y_0)$$

(Nonlinear Program)