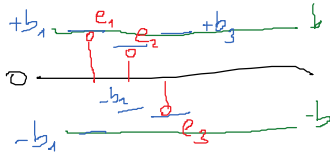


$b_1$



$$\text{System: } \begin{cases} \dot{x}_1 = x_2 \\ \dot{x}_2 = \frac{1}{a} (b \cos(x_1) + c u) \end{cases} \quad \left\{ \begin{array}{l} a > 0 \\ b, c \geq 0 \end{array} \right.$$

→ experiment:  $x_1, x_2, \dot{x}_2, u$

→ identify  $a, b, c$

$$\text{→ error: } e_k = \dot{x}_{2,k} - \frac{b}{a} \cos(x_{1,k}) - \frac{c}{a} u_k \quad \left| \quad L_2: e^T e \right.$$

$$e = \begin{bmatrix} e_1 \\ e_2 \\ \vdots \end{bmatrix} \quad \hookrightarrow \frac{1}{a}, \frac{1}{a^2} \text{ in the cost function } X$$

$$\text{→ new error: } e_k = a \dot{x}_{2,k} - b \cos(x_{1,k}) - c u_k \quad \left| \quad L_1: e^T e \right.$$

"best" solution:  $a=b=c=0$  X

$$\text{→ new error: } e_k = \dot{x}_{2,k} - \overset{\substack{\nearrow = \frac{b}{a}}}{p_1} \cos(x_{1,k}) - \overset{\substack{\nearrow = \frac{c}{a}}}{p_2} u_k$$

↑ new opt. variables

→ "choose  $a$ " → calculate  $b, c$