

Model examples

$$\begin{cases} \dot{x}_1 = x_2 + v \\ \dot{x}_2 = -kx_1 + u \end{cases}$$

$$|u| \leq 1, \quad |v| \leq 1$$

$k = 0$: the inertial point

$k = 1$: the oscillator (the pendulum)