Trajectories

Input

- Joystick commands: `cmd_hst_pt, cmd_crd_pt`

Output

- Torques: `u_hst, u_crd`
- Positions: `y_hst, y_crd`

Currently we have:

- `n_tra` different trajectories of size `n_sim`
- `n_tra = 9; n_sim = 1000`
- each matrix of size `(n_tra, n_sim)`

Objective Function

Parameters that are optimized:

`hst_inertia_engine, inertia_yy, hst_friction, crd_mass`

$$\begin{aligned}\min_{p\in\mathbb{R}^4} f(p) = \quad & \alpha_1 \cdot \|\overline{U}_{hst} - U_{hst}(p)\|_F^2 + \alpha_2 \cdot \|\overline{U}_{crd} - U_{crd}(p)\|_F^2 \\ & + \alpha_3 \cdot \|\overline{Y}_{hst} - Y_{hst}(p)\|_F^2 + \alpha_4 \cdot \|\overline{Y}_{crd} - Y_{crd}(p)\|_F^2 \\ s.t. \quad & p_i \geq 0\end{aligned}$$