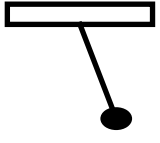
Hamiltonian system



$$\mathcal{H}(q,p) = p^2/2 + (1-\cos(q))$$

$$\mathcal{D} = \{q_i, p_i, \dot{q}_i, \dot{p}_i\}_{i=0}^{K}$$

Initial approximation

$$\widehat{\mathcal{H}} = W\phi + b$$

ϕ is sampled (unsupervised)

$$(W, b) = \arg\min \mathcal{L}(\nabla\phi, \dot{q}, \dot{p})$$

Resample using $\widehat{\mathcal{H}}(q,p)$

$$W^*\phi^* + b^* \approx \mathcal{H}(q,p)$$

ϕ^* is SWIM-sampled

$$(W^*, b^*) = \arg\min \mathcal{L}(\nabla\phi^*, \dot{q}, \dot{p})$$